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# MT. HOOD PLANNING UNIT

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## PROPOSED INTERAGENCY PLAN



**Final  
Environmental  
Statement**



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**Mt. Hood Planning Unit**  
**PROPOSED INTERAGENCY PLAN**  
**Final Environmental Statement**  
**October, 1977**

**U.S. Department of Agriculture**  
**Mt. Hood National Forest**

**U.S. Department of Agriculture**  
**Bureau of Land Management**

**Clackamas County**

**Hood River County**

**Oregon State Forestry Department**

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USDA: FOREST SERVICE; USDI: BUREAU OF LAND MANAGEMENT;  
CLACKAMAS COUNTY; HOOD RIVER COUNTY, OREGON  
FINAL ENVIRONMENTAL IMPACT STATEMENT

MT. HOOD PLANNING UNIT INTERAGENCY LAND USE PLAN

USDA-FS-R6-FES(Adm)-76-8

Prepared in Accordance with  
Section 102(2)(C) of Public Law 91-190

Responsible Official:

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Oregon State Office  
P.O. Box 2965  
Portland, OR 97208

SUMMARY SHEET

- |      |   |     |             |     |
|------|---|-----|-------------|-----|
| I.   | DRAFT   | ( ) | FINAL       | (X) |
| II.  | FOREST SERVICE, USDA; BUREAU OF LAND MANAGEMENT,<br>USDI; CLACKAMAS COUNTY, HOOD RIVER COUNTY, OREGON |     |             |     |
| III. | ADMINISTRATIVE  | (X) | LEGISLATIVE | ( ) |
| IV.  | BRIEF DESCRIPTION OF ACTION   |     |             |     |

This document contains the recommended Mt. Hood Interagency Plan and Alternatives. Altogether, it represents a course of action for dealing with land use problems and needs on 158,000 acres of public and private lands within the Mt. Hood area, a region important to the Nation and State of Oregon. The area is subject to a wide range of conflicting demands because it has high natural resource values, includes seven small communities and lies in close proximity to several large cities; over one million people live within a 1-2 hour drive of the Planning Unit. Each alternative has an environmental assessment which addresses impacts and the mountain's carrying capacity.

The basic framework for the Plan and Alternatives is established by a series of general direction statements and land categories common to all the alternatives; these have been agreed upon by the local, state and federal agencies managing the area. Land use policies and regulations on private, county and state lands are determined by county comprehensive plans. Land and resource



allocations in the Proposed Plan and Alternatives on National Forest and BLM lands are based in part upon compatibility with county planning decisions as well as regional and national needs.

Because Clackamas and Hood River Counties have adopted revised comprehensive plans for the portions of the Planning Unit under their jurisdiction, all the Alternatives reflect these planning decisions on private lands. Based on the county plans, the population in the area will range from 17,000 to 22,000. A balance of use is emphasized to minimize external costs of development upon the public; development is concentrated in areas already committed to developed use; adequate support facilities and services will be provided within compact, defined service areas.

The Proposed Plan is oriented toward balancing land uses according to environmental capacity and substantiated needs. It includes the following allocations for each land category:

Environmental Protection - 4700 acres; Wilderness and Wilderness Study - 48,000 acres; Unroaded Recreation - 7700 acres; Developed Recreation - 8600 acres; Roaded Recreation - 41,200 acres; General Forest - 36,100 acres; Farm - 3900 acres; Housing - 7500 acres; and Commercial, Industrial and Special Sites - 300 acres.

There are 66,200 acres of identified roadless areas in the Planning Unit, 47,600 acres of which are already designated by Congress as Wilderness or Wilderness Study areas; the remaining 18,600 acres are proposed for a variety of types of management ranging from Wilderness Study to Roaded Recreation. All roadless areas are reviewed for potential wilderness suitability in the Rationale for Selection of the Proposed Plan section.

Approximately 17,900 acres of the Mt. Hood Planning Unit are within the Bull Run Reserve established to protect the City of Portland's water supply. Currently, portions of the Reserve, like those in the Planning Unit which do not lie in the physical drainage of the Bull Run River, remain open only through a temporary Congressional measure. Congress is now in the process of developing a new law for management of the watershed. The Proposed Plan cannot be implemented within the Reserve unless Congress changes the law.

The Proposed Plan is consistent with the April 1926 Land Classification Order in which the Secretary of Agriculture declared recreation a high use priority in the Mt. Hood Area.

The option for exploration and development of geothermal resources remains open except in Wilderness Areas. Geothermal exploration will be permitted in Wilderness Study Areas.

This plan will be in effect until it is reviewed and if necessary, revised as soon as practicable under the guidelines for land management planning. These guidelines will be in the regulations promulgated pursuant to Section 6 of the National Forest Management Act of 1976 (PL 94-588), including the guidelines developed under subsection 6(g) through consultation with the Committee of Scientists.



## V. ENVIRONMENTAL IMPACTS AND ADVERSE ENVIRONMENTAL EFFECTS

Environmental impacts displayed include physical, biological, social and economic aspects. The plan represents land uses which are compatible with the environment of the Mt. Hood Area. The rationale for selection of the Proposed Plan is discussed following description of the impacts of the Plan.

Some adverse effects on the soil resources will occur through activities such as timber harvesting and increased population and development of housing and roads. Localized increases in runoff will occur with the installation of impervious surfaces. The visual character of some areas will be modified. Log hauling will increase traffic and noise near residential areas. Most highway sections between Wildwood and Timberline Highway would probably need expansion to four lanes as the projected population levels are approached. Timber harvesting will affect wildlife species, particularly those requiring snag habitat.

Wild trout angling opportunities will diminish. The increased number of residents and visitors will lead to additional wildlife and fisheries harassment. The sensitive alpine biosere may be adversely impacted. Growth in free ranging dog and cat populations will increase wildlife harassment.

Some roadless areas identified in the RARE II inventory will continue to be managed in a roadless condition, while others are designated for timber harvest, roads and heavier recreational use.

Highway modifications would result in some adverse effects such as removal of some old growth timber presently viewed as scenic and removal of large quantities of rock and gravel. Energy consumption would be increased. Geothermal exploration and development could have adverse effects depending on the extent of development. Construction of housing, commercial and industrial facilities as well as their supporting services will remove land from further production of natural resources. Dust and noise pollution will occur.

## VI. ALTERNATIVES TO THE PROPOSED ACTION

Alternatives proposing nonsustainable uses or practices inconsistent with land suitabilities were not considered. The Proposed Plan and Alternatives all have the same land designations on private lands to be consistent with the adopted County Comprehensive Plans.

### ALTERNATIVE A

Perspective. This alternative to the Proposed Plan assumes a continuation of the existing plans on National Forest and BLM lands with some adjustments to Roaded Recreation and General Forest areas based on adjacent county planning decisions. More area is allocated for General Forest and Roaded Recreation than in the Proposed Plan or Alternative B. Therefore, impacts on soil and water resources and fish and wildlife would be greatest under this alternative. No roadless areas would be proposed for wilderness study beyond those currently designated.

Highway 26 would have to be an expanded four lane facility from Brightwood to Rhododendron.



## ALTERNATIVE B

Perspective. This is the no change alternative. It reflects the concern of the communities and persons desiring to retain the area much as it is now on National Forest lands. Additional lands for wilderness study and large undisturbed forest areas are also stressed. All roadless areas identified in the RARE II process are identified for Wilderness Study. Geothermal development would not be permitted on federal lands. Highway 26 is indicated for improvements, basically maintaining the existing facility, although some four lane sections may be necessary as the projected population level is reached.

### VII. COMMENTS ON THE DRAFT ENVIRONMENTAL STATEMENT WERE RECEIVED FROM THE FOLLOWING:

#### Federal Agencies

- Advisory Council on Historic Preservation
- Department of Agriculture
  - Soil Conservation Service
- Department of Commerce
  - National Oceanic and Atmospheric Administration
- Department of Housing and Urban Development
- Department of the Interior
  - Bonneville Power Administration
  - Bureau of Land Management
- Environmental Protection Agency
- Federal Power Commission
- National Aeronautics and Space Administration

#### Congressional Delegation

- Al Ullman, House of Representatives

#### State Agencies - Oregon

- Department of Fish and Wildlife
- Department of Forestry
- Department of Geology and Mineral Industries
- Department of Land Conservation and Development
- Department of Transportation
- Intergovernmental Relations Division
- Soil and Water Conservation Commission
- State Historic Preservation Officer

#### County Agencies

- Clackamas County Public Works Department
- Mid-Columbia Economic Development District
- Multnomah County Division of Planning and Development
- Wasco County Planning Office



#### National Organizations

Friends of the Earth  
League of Women Voters  
Sierra Club

#### Local Organizations and Individuals

In addition, 450 individual comments were received from local organizations and individuals concerning the Draft Environmental Statement. A summary of these comments is included in the Public Input Analysis in Exhibit D. The list of commenting individuals is on file and available from the Mt. Hood Forest. Responses to substantive individual comments are included in the Consultation with Others section of this statement.

VIII. THE DRAFT STATEMENT WAS MADE AVAILABLE TO THE COUNCIL ON ENVIRONMENTAL QUALITY (CEQ) AND THE PUBLIC ON MARCH 1, 1976.

THIS FINAL ENVIRONMENTAL STATEMENT WAS TRANSMITTED TO CEQ AND THE PUBLIC ON:





USDA: FOREST SERVICE; USDI: BUREAU OF LAND MANAGEMENT  
PACIFIC NORTHWEST REGION; CLACKAMAS COUNTY; HOOD RIVER COUNTY, OREGON  
FINAL ENVIRONMENTAL IMPACT STATEMENT

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TYPE OF STATEMENT

FINAL

TYPE OF ACTION

ADMINISTRATIVE

DATE OF TRANSMISSION TO CEQ

RESPONSIBLE OFFICIAL:

For National Forest Lands

R.E. Worthington  
Regional Forester  
U.S. Forest Service  
Pacific Northwest Region  
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Portland, OR 97208

For BLM Lands

Murl Storms  
State Director  
Oregon State Office  
P.O. Box 2965  
Portland, OR 97208

Decision Authority on Private Lands

Clackamas County, OR  
Hood River County, OR

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Clackamas County  
Columbia Region Association of Governments  
Hood River County  
Mid-Columbia Economic Development District  
Oregon State Department of Transportation  
Oregon State Forestry Department  
U. S. Forest Service

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Dave Corkran  
Grant DeShazer  
Cranston Fosburg  
Bill Furrow  
Alan Goudy  
Philo Gregg  
Maryanne Hill  
Ruth Love  
Kate McCarthy  
Steve Nance  
Al Nelson  
Watford Reed  
Carl Reynolds  
Roger Shields  
Joie Smith  
Charles Tomassene  
Don Valley  
Marion Waterman

### Members serving from 1974-1975:

Marcel Jan Ames  
James G. Ashbaugh  
R. A. Brown  
Betty Coleman  
Heather Henderson  
Florence McKenzie  
Betty Merten  
John Thompson  
Nancy Thornton

### Other Participating Government Agencies

#### Federal

Bureau of Outdoor Recreation  
Environmental Protection Agency  
Pacific Northwest Forest & Range Experiment Station  
Soil Conservation Service

#### State

Department of Environmental Quality  
Department of Fish and Wildlife  
Department of Geology & Mineral Industries  
Land Conservation & Development Commission  
Portland State University  
Oregon State University  
State Engineer's Office  
State Extension Service  
State Health Department  
State Historic Preservation Office  
State Water Resources Board.

#### Regional

Portland Metropolitan Area Local Government Boundary Commission

#### Local

Department of Public Works-Hood River & Clackamas Counties  
Health Department-Hood River & Clackamas Counties  
Hood River County Forestry Department  
Local Service Districts (fire, water, parks, etc.)



MT. HOOD PLANNING UNIT  
**VICINITY**

WASHINGTON

OREGON

MT. HOOD

Parkdale

Zigzag

Government  
Camp

Estacada

Gresham

portland

Sandy

Cascade  
Locks

Hood  
River

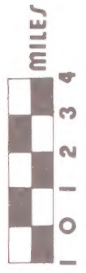
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## FOREWORD

This document contains the recommended Mt. Hood Interagency Plan and Alternatives for dealing with land use problems and needs on public and private lands within the Mt. Hood area in Oregon. Each alternative considered includes an environmental assessment which addresses impacts and the mountain's carrying capacity.

### THE INTERAGENCY PLANNING EFFORT

On June 11, 1973 a declaration of cooperative intent was signed by agencies responsible for managing and regulating the area. This agreement provided a commitment of staff and funding to study Mt. Hood and to prepare a common framework for land use. The primary participants in the study were the Forest Service, Bureau of Land Management and Clackamas and Hood River Counties. Planning documents which formed the initial basis for this unique effort were Multiple Use Plans done by the Forest Service and Bureau of Land Management, Clackamas County's "Preliminary Plan - Mt. Hood Community" and the "Hood River County Comprehensive Plan."

The planning effort generated by this agreement went through five stages: (1) the development of objectives for the area; (2) land suitability analysis; (3) consideration of views on alternative "Futures;" (4) compilation of a Proposed Interagency Plan and Alternatives (Draft Environmental Statement); and (5) review and refinement of agency plans.

The program involved an Executive Board, a Citizen Advisory Committee and a Multi-agency Planning Team. Executive Board members provided the leadership and steady direction for developing the Proposed Plan and Alternatives, working together to become more familiar with mutual concerns and problems. The Citizen Advisory Committee (CAC) donated a great deal of time and effort learning about the area and maintained a continuing and sharp dialogue on major issues providing valuable input to the Planning Team and Executive Board. Planning Team members were drawn from the staffs of local, state and federal agencies involved in the Planning Unit. A multidiscipline approach was used



**Executive Committee**



**Citizen Advisors**



**Public**



**Planners**



by the team to develop information on land suitability and environmental capacity, review interim development projects and prepare three major publications to inform and involve the public in the planning process. Public involvement and interagency coordination were emphasized throughout the program.

#### THE DRAFT ENVIRONMENTAL STATEMENT

In March 1976, the work of the Executive Board, CAC and Planning Team and the public input were brought together in the Mt. Hood Planning Unit - Proposed Interagency Plan, Draft Environmental Statement. The document contained valuable resource information, original research findings, an environmental capacity analysis, broad direction for such sensitive issues as highway improvement, ski area development and sewage service, and a common format for land management within the area. Because the Proposed Plan and Alternatives deal more with land and resource allocation than site specific problems, all issues were not immediately resolved. However, work on the Draft Environmental Statement did provide a basis for revision and refinement of the area plans used by agencies involved in the Planning Unit.

#### AMENDMENT OF COUNTY PLANS

Following distribution of the Draft Environmental Statement, Clackamas and Hood River counties began review of their existing comprehensive plans and held public hearings regarding amendment of the county plans. On November 8, 1976, the Clackamas County Board of Commissioners adopted amendments to the "Preliminary Plan -- Mt. Hood Community" and retitled the document as the "Mt. Hood Community Plan." These amendments finalized the plan and refined its growth policies and provisions for services. Hood River County adopted a "Mt. Hood Planning Unit Comprehensive Plan" for the upper valley area in December 1976 as a refinement of its overall County Comprehensive Plan and made final approval on June 13, 1977.

Both counties supplemented and strengthened their existing plans by drawing from applicable portions of the Draft Environmental Statement (DEIS), in the Draft EIS.

Clackamas and Hood River Counties for example, identify Forest areas where visual characteristics should be protected, but chose to retain all private, county and state forest lands in the General Forest category rather than designating some as Roaded Recreation areas. Roaded Recreation management allows timber harvest, but would have reduced the level of yield in most areas to protect visual values. The adopted county plan amendments established a projected resident population level for the overall Planning Unit between the Level 1 and 2 population projections described in the Draft EIS Proposed Plan.

## DIFFERENCES BETWEEN THE DRAFT AND FINAL ENVIRONMENTAL STATEMENTS

This document is the Final Environmental Statement for the Mt. Hood Planning Unit - Proposed Interagency Plan. Because Clackamas and Hood River Counties have now adopted comprehensive plan amendments, the Proposed Plan and Alternatives in this document all reflect the county decisions on private lands. Unlike the Draft Environmental Statement which showed a range of alternatives on private lands, the Description and Impacts section in the Final EIS will all be the same for private lands. Based on the county planning decisions, comments from other agencies and the public and agency review, some proposed land allocation and policy changes were also made on National Forest and BLM lands in the Final EIS (e.g. the Proposed Plan includes more acreage in General Forest, adjusts permit area boundaries and has more information on socio-economic factors. The RARE II inventory of roadless areas was used in the Final EIS and wilderness suitability criteria were reviewed in the areas identified.

Preparation of the Final Environmental Statement has involved the efforts of the Planning Team and other planning and resource specialists from many agencies, the Citizen Advisory Committee and Executive Board. Following review of proposed changes to the Interagency Plan by the Planning Team and CAC, the Executive Board met on March 30, 1977 and approved a revised draft of the Proposed Plan. The text and maps in the Final Environmental Statement were then revised to reflect the changes in the planning direction and impacts, and to respond to comments received as part of the draft environmental statement process.

## IMPLEMENTATION OF THE INTERAGENCY PLAN

When the decision on this Final Environmental Statement has been made by the Forest Service and BLM, then the proposed land management plans and the respective decisions for all participating jurisdictions will be placed in a "Mt. Hood Framework Plan Summary." This summary document will include the decisions of each agency responsible for land management and regulation in the Planning Unit and will serve as a common planning reference for the area.

The strong commitment to interagency coordination and citizen involvement established in preparing the Mt. Hood Interagency Plan will continue. Agency officials from the counties, Forest Service and BLM have agreed to work closely in implementing their plans through their planning staffs and to meet as the need arises to resolve problems. In the future, agencies with responsibilities in the Planning Unit will rely upon County Citizen Involvement Programs as an essential part of their planning effort.





# TABLE OF CONTENTS

SUMMARY . . . . .	ii
FORWORD . . . . .	x
TABLE OF CONTENTS . . . . .	xiii
LIST OF MAPS AND FIGURES . . . . .	xv
INTRODUCTION	
The Area and Interagency Involvement . . . . .	1
The Overall Objective and the Decision Process . . . . .	1
Implementation . . . . .	2
Planning Area Description . . . . .	4
BACKGROUND	
Regional Planning Setting . . . . .	12
Planning Process . . . . .	14
Existing Plans . . . . .	17
Planning Goals . . . . .	19
THE ENVIRONMENT	
Physical and Biological Characteristics	
Geology and Geologic Hazards . . . . .	22
Minerals, Rock and Energy . . . . .	27
Climate . . . . .	33
Soils . . . . .	33
Hydrology . . . . .	34
Water Quality . . . . .	38
Air Quality . . . . .	39
Noise . . . . .	40
Vegetation . . . . .	40
Wildlife . . . . .	43
Fisheries . . . . .	45
Land Use . . . . .	48
Agriculture . . . . .	50
Timber Management . . . . .	53
Recreation . . . . .	56
Wilderness and Roadless Areas . . . . .	64
Housing . . . . .	68
Commercial . . . . .	71
State Transportation System . . . . .	72
Land Ownership Adjustment . . . . .	76
Fire Management . . . . .	76
Visual Resources . . . . .	78



Social and Economic Characteristics . . . . .	79
Cultural Resources . . . . .	79
Communities . . . . .	84
Demography . . . . .	91
Education and Employment . . . . .	97
Income and Public Assistance . . . . .	100
Health, Housing and Social Disorganization . . . . .	101
Community Services . . . . .	102
Community Identity . . . . .	105
Economic Activities	
Recreation and Tourism . . . . .	106
Retail and Commercial Trade . . . . .	107
Agriculture . . . . .	108
Wood Products . . . . .	109
Assessed Property Valuation . . . . .	110
THE PROPOSED PLAN AND ALTERNATIVES	
The Proposed Plan	
Perspective . . . . .	133
Narrative Description . . . . .	134
Maps (see attachment)	
Environmental Impacts . . . . .	145
Rationale for the Proposed Plan . . . . .	162
Goals Analysis . . . . .	166
Alternative A	
Perspective . . . . .	176
Narrative Description . . . . .	177
Maps (see attachment)	
Environmental Impacts . . . . .	180
Alternative B	
Perspective . . . . .	187
Narrative Description . . . . .	188
Maps (see attachment)	
Environmental Impacts . . . . .	191
ADVERSE ENVIRONMENTAL EFFECTS . . . . .	198
SHORT TERM USE/LONG TERM PRODUCTIVITY . . . . .	203
IRRETRIEVABLE RESOURCE COMMITMENT . . . . .	206
SUMMARY OF EFFECTS . . . . .	207
CONSULTATION . . . . .	218
GLOSSARY . . . . .	275
REFERENCES . . . . .	286
APPENDIX . . . . .	291

## LIST OF FIGURES AND MAPS

Figures	Page
1	Ownership and 1975 Population and Housing . . . . . 3
2	Decision Process . . . . . 15
3	Geologic Structure Section . . . . . 23
4	Geothermal Leasing Procedure for Federal Lands . . . . . 31
5	Commercial Production from Hood River Valley . . . . . 52
6	Summary of Roundwood Consumption . . . . . 54
7	Cumulative Effect of Unroaded Areas on Timber Harvest . . . 55
8	Recreation Areas . . . . . 57
9	Ski System Capacities . . . . . 57
10	Visitor Use Days . . . . . 59
11	Regional Recreation Data . . . . . 62
12	Roadless, Wilderness Study and Wilderness Areas . . . . . 66
13	Projected Housing Needs . . . . . 70
14	Highway Capacity . . . . . 72
15	Year Round Population . . . . . 91
16	Seasonal Resident Population . . . . . 92
17	Seasonal and Year Round Population . . . . . 92
18	Population Projections . . . . . 93
19	Population Change . . . . . 94
20	Age and Sex Population Breakdown . . . . . 95
21	Minority Populations . . . . . 96
22	Estimate of Inter and Intra State Migrants . . . . . 97
23	Clackamas County Minority Population . . . . . 98
24	Hood River County Minority Population . . . . . 99
25	Employment by Occupational Categories . . . . . 100
26	1969 Income . . . . . 101
27	Sewage Treatment Plants . . . . . 104
28	Assessed Valuation and Property Taxes . . . . . 111
29	Community Capacity and Service Areas . . . . . 142
30	Environmental Capacity Analysis . . . . . 144
31	Evaluation of Wilderness Characteristics in Roadless Areas 164
32	Goals Analysis . . . . . 167
33	Goal Analysis - Evaluation of Alternatives . . . . . 169
34	Land Allocation RPA Target versus Present and Proposed Plans . . . . . 175
35	Acreage Allocations by Alternative . . . . . 207
36	Environmental Capacity Summary . . . . . 208
37	Transportation System Alternatives . . . . . 209
38	Timber Allocation Comparisons . . . . . 210-211
39	Timber Management Summary . . . . . 212
40	Visual Quality Objectives Summary . . . . . 212
41	General Assessment Summary . . . . . 213-216



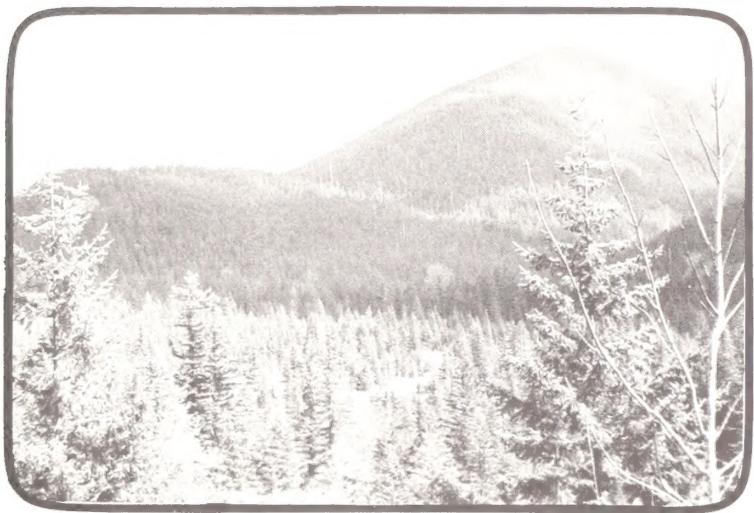
## Maps

1	Vicinity Map . . . . .	ix
2	Mt. Hood Planning Map . . . . .	Following page 11
3	Adjacent Planning Units . . . . .	13
4	Geology . . . . .	26
5	Geothermal . . . . .	29
6	Watersheds, Stream Class and Well Locations . . . . .	37
7	Land Ownership . . . . .	49
8	Recreation . . . . .	58
9	Roadless Area Map . . . . .	63
10	Small Private Ownership and Developed Lands . . . . .	69
11	Scenic Roads . . . . .	73
12	Proposed Land Exchange . . . . .	75
13	Cultural Resources . . . . .	82
14	Community Services . . . . .	103
15	Proposed Plan Land Use . . . . .	Following page 142
16	Community Land Use . . . . .	143
17	Geothermal Map . . . . .	143
18	Alternative A Land Use . . . . .	Following page 179
19	Alternative B Land Use . . . . .	Following page 190

Land Suitability Map

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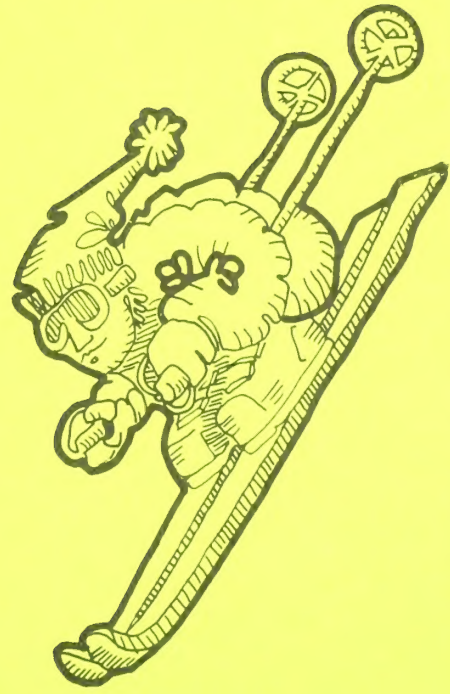




**IMAGES**







## Introduction





## INTRODUCTION

### THE AREA AND INTERAGENCY INVOLVEMENT

The Mt. Hood Planning Unit is a 250 square mile expanse of forest, productive fruit orchards, small mountain communities and open recreation country. Management of this region is shared by Clackamas and Hood River Counties, the State of Oregon, U.S. Forest Service and Bureau of Land Management (BLM).

Mt. Hood's snowcapped peak is the dominant feature of the Planning Unit. Each year six million visitors are drawn to the area for hiking, skiing, fishing or driving for pleasure on the scenic Mt. Hood loop highway. Seven thousand people reside in the area either on a seasonal or year round basis. These residents are engaged in farming, logging and service industries or use the area for retirement or second homes. The problem is that all the people who visit and live in Mt. Hood area do not agree on what the area should be like in the future. In the past, these competing interests and the lack of coordination between governmental agencies resulted in cross-purpose planning.

In an effort to coordinate land use policy and direction for the mountain area, an agreement was signed on June 11, 1973 at Timberline Lodge organizing a cooperative, multiagency planning program. It was called the Mt. Hood Interagency Planning Team or HOOD/INPUT.

### THE OVERALL OBJECTIVE

The basic concept of HOOD/INPUT was a simple one: A group of agencies working together to integrate and build upon former plans and studies; and to resolve conflicting demands and interests upon the Mt. Hood environment. In short, planning together for Mt. Hood as a whole. The overall objective was to develop a Mt. Hood Interagency Plan.

### THE DECISION PROCESS

The responsibility for adopting the plan rests with the individual counties and the Forest Service and BLM. Decisions on the issues and areas related to private, county and state lands were made after public hearings at both the Planning Commission and Board of County Commissioners levels as provided under state law. Decisions for the federally administered lands will be made following the filing of this Final Environmental Impact Statement. The decisions will be binding on all lands within the Mt. Hood Planning Unit when these procedures are completed.

Once the Forest Service adopts a plan, it will be in effect until it is reviewed and if necessary, revised as soon as practicable under the guidelines for land management planning. These guidelines will be in the regulations promulgated pursuant to Section 6 of the National Forest Management Act of 1976 (PL 94-588) including the guidelines developed under subsection 6(g) through consultation with the Committee of Scientists.

## IMPLEMENTATION

The responsibility for plan implementation will rest with the agency with management authority or jurisdiction over the lands within the Planning Unit. Now that their plans have been amended, the counties will develop necessary supporting zoning and other ordinances to carry out their plans.

To ensure that the implementation of the plans is orderly and coordinated, the principal agencies involved (i.e. Clackamas County, Hood River County, Mt. Hood National Forest, Bureau of Land Management, State Forestry Department, State Department of Transportation, Mid-Columbia Economic Development District and Columbia Region Association of Governments) have agreed to work closely together. Each agency will continue to review the ongoing activities of the others, make recommendations on planning needs and keep the public aware of progress on activities underway and new projects being planned. No formal interagency executive council will be necessary because agency representatives will meet as needed to ensure a coordinated planning effort.

County citizen involvement programs will be used because they are an established vehicle for keeping the public involved and informed about planning activities in the Mt. Hood area. These programs are aimed at reaching all segments of the public in all phases of the planning process and have been formally adopted by the county governing bodies.

The overall adopted plan is to be reviewed and revised every ten years. Plan amendment proposals in the public interest may be considered once a year by the respective planning authorities in coordination with other agencies involved in the Planning Unit.

During the development of the Interagency Plan, the Interagency Planning Team joined together in making technical reviews of significant development projects proposed in the Planning Unit. In the future, the option for interagency technical review will continue to be available at the request of the responsible agency.



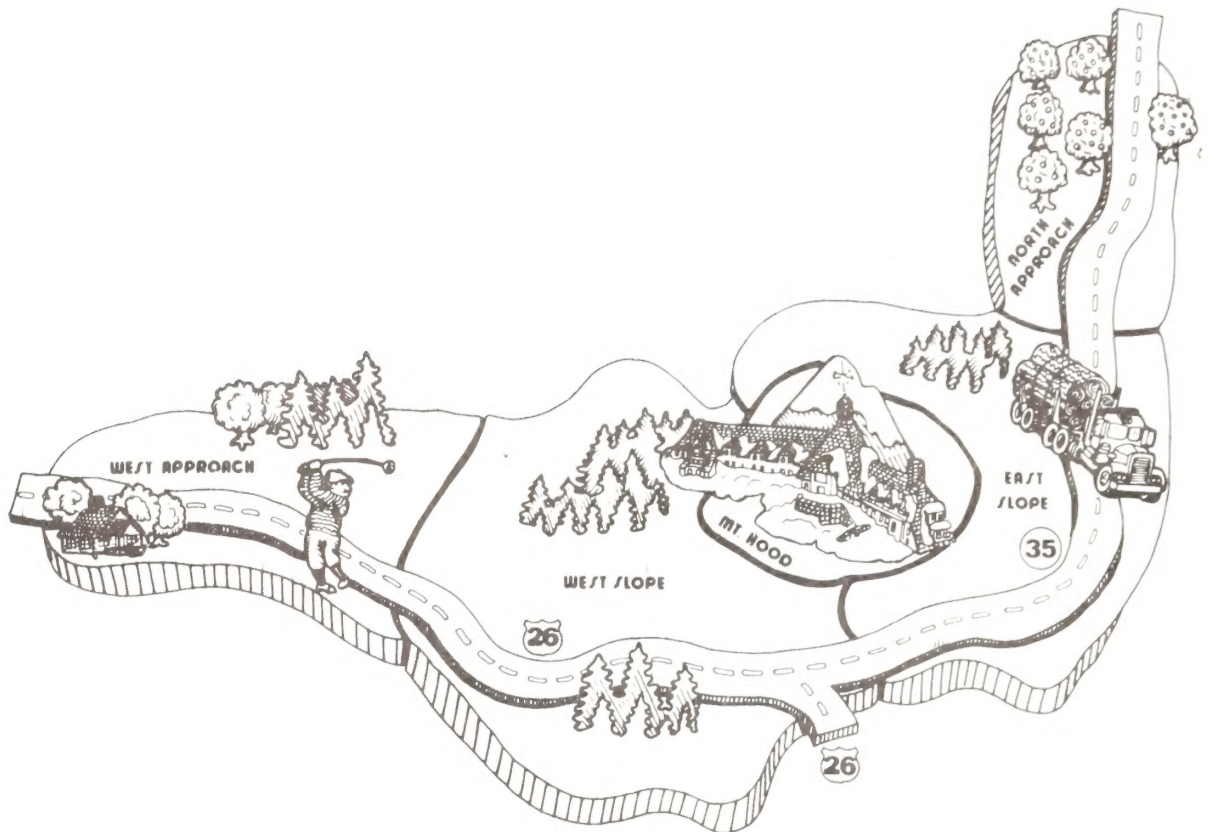
Figure 1

OWNERSHIP (ACRES)	
National Forest	120,100
Private	27,900
Bureau of Land Management	5,300
Clackamas County	1,700
Hood River County	2,300
State of Oregon	700
<b>TOTAL</b>	<b>158,000</b>

1975 POPULATION AND HOUSING			
	Westside Clackamas Co.	Eastside Hood River Co.	Totals
Population:			
Vacation	3800	20	3820
Migrant	--	220	220
Permanent	2700	420	3120
Totals	6500	660	7160
Housing:			
Vacation	1165	10	1175
Migrant	--	150	150
Permanent	1275	120	1395
Totals	2440	280	2720



## PLANNING AREA DESCRIPTION

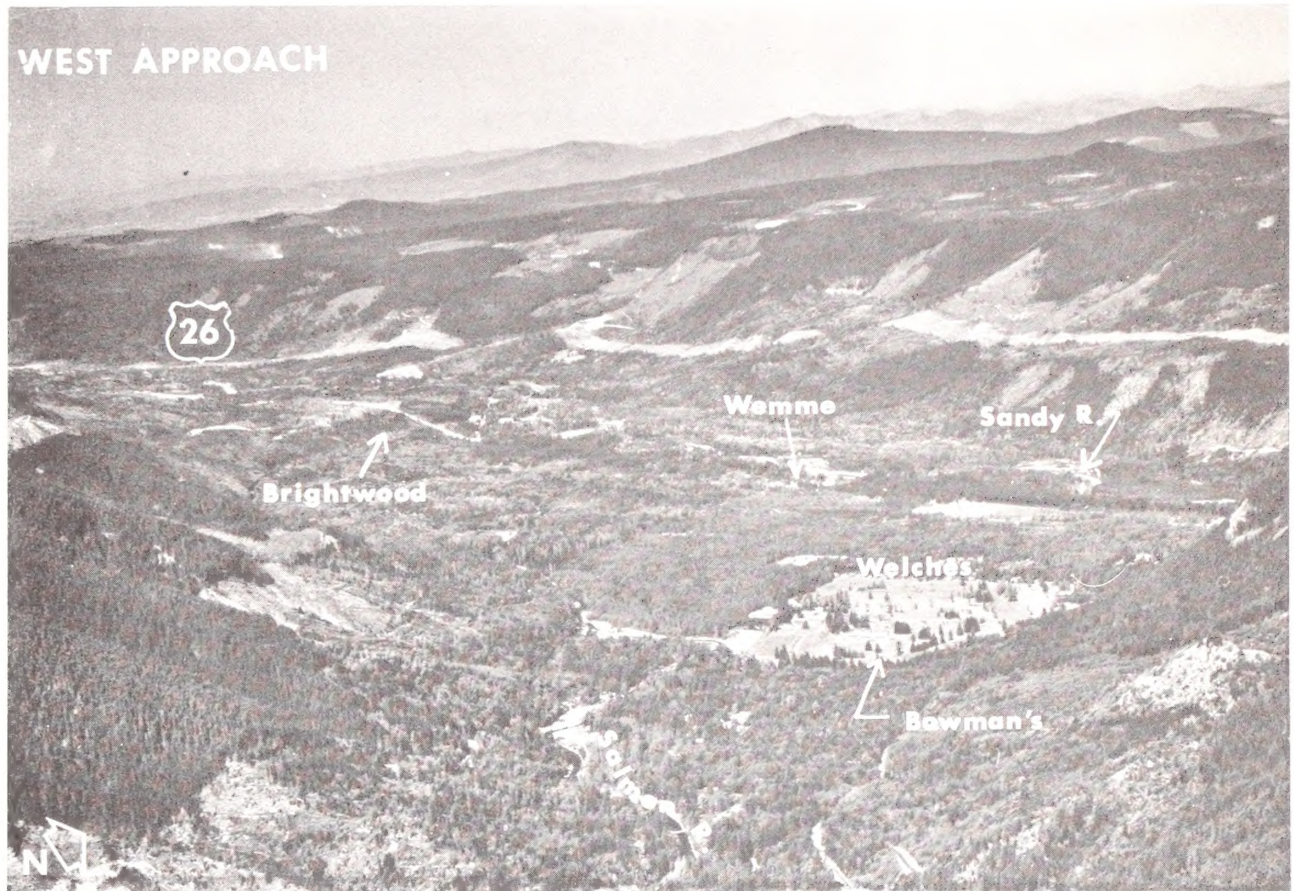


The Mt. Hood Planning Unit reflects a diversity of ownerships, geography, topography and a complexity of local, regional and national issues. The main physical feature is Mt. Hood proper, rising 11,235 feet above sea level. This is the highest peak in Oregon. The Planning Unit encompasses about 158,000 acres and extends from Cherryville to Parkdale, including portions of both Clackamas and Hood River Counties in Oregon. The scenic Mt. Hood Loop, Highways 26 and 35 run the length of the Planning Unit. Within the boundaries of the area are the small communities of Brightwood, Wemme, Zigzag, Rhododendron, Government Camp and Parkdale. The Mt. Hood Wilderness and the Mt. Hood and Zigzag Mountain Wilderness Study Areas are also located in the Unit.

Taking a closer look, differences between areas within the unit boundary become more apparent. The Planning Unit has been divided into five areas or subunits to better show these differences. Descriptions of the subunits are as follows (from west to east):



## WEST APPROACH



This portion of the Planning Unit extends from Cherryville to Zigzag. Compared to the other subunits, it is the most easily accessed from Portland and consequently, faces more urbanization pressure than any other portion of the Unit. Signs of urbanization are already evident in the commercial development along Highway 26, concerns about sewers and improved water systems, commuting residents and permitted densities, and urban sized lots. Thousands of subdivision lots, many undeveloped, lace the Sandy River Valley floor. This area today is still an attractive mountain corridor, an "approach" to the forested slopes of Mt. Hood.

The West Approach includes a sizable amount of private land under Clackamas County jurisdiction which is intermixed with public lands. Some of the lowest elevation lands in the Planning Unit are found here, lying adjacent to the Sandy and Salmon Rivers. Productive forest lands slope upward to major ridgelines on both the north and south. Bowman's Resort is a popular summer use area with a public golf course and is a gateway to the Salmon River area. A large public park and picnic area administered by the Bureau of Land Management is located at Wildwood.



THE WEST SLOPE. This subunit includes the western lower slopes and foothills of Mt. Hood. Principal physical features are the rugged Zigzag Mountain area, the Still Creek drainage, Lolo Pass and Trillium Lake.

The majority of land in this area is public land administered by the Mt. Hood National Forest. Small islands of privately owned land at Rhododendron and Government Camp are located within the National Forest. The Forest Service leases over 500 summer home sites between Zigzag and Laurel Hill. Commercial facilities are located at Rhododendron and Government Camp.

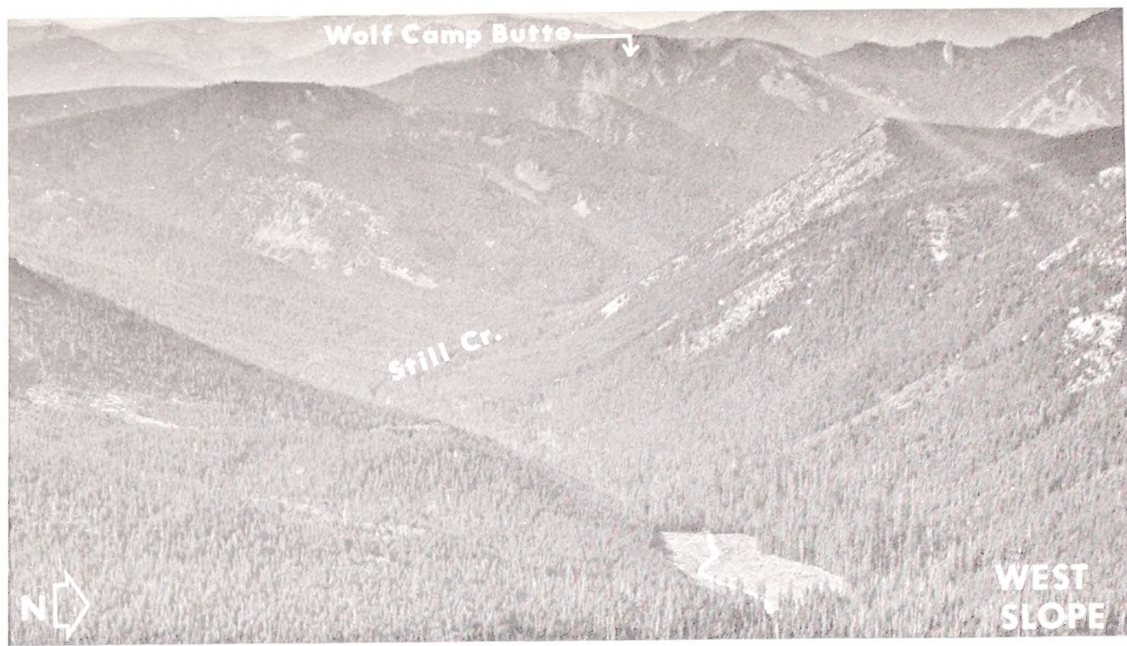
This area is popular for both downhill and cross country skiing, snowshoeing, snowmobiling and snowplay. Multotorp, Ski Bowl and Summit are areas that provide facilities for downhill skiing and Snowbunny Lodge offers facilities for snowplay. Summer attractions include trails for backpacking, fishing, horseback riding and trail biking. Summer use is concentrated in popular recreation areas such as Ramona Falls, McNeil Campground, Trillium Lake and Mirror Lake. The Pacific Crest National Scenic Trail passes through this subunit.

A large portion of the West Slope has potential for wilderness and is to be studied for its wilderness suitability. Timber harvesting, although it does not occur throughout the subunit, is an important activity. Most logging has taken place in the Lolo Pass area and Still Creek drainage.

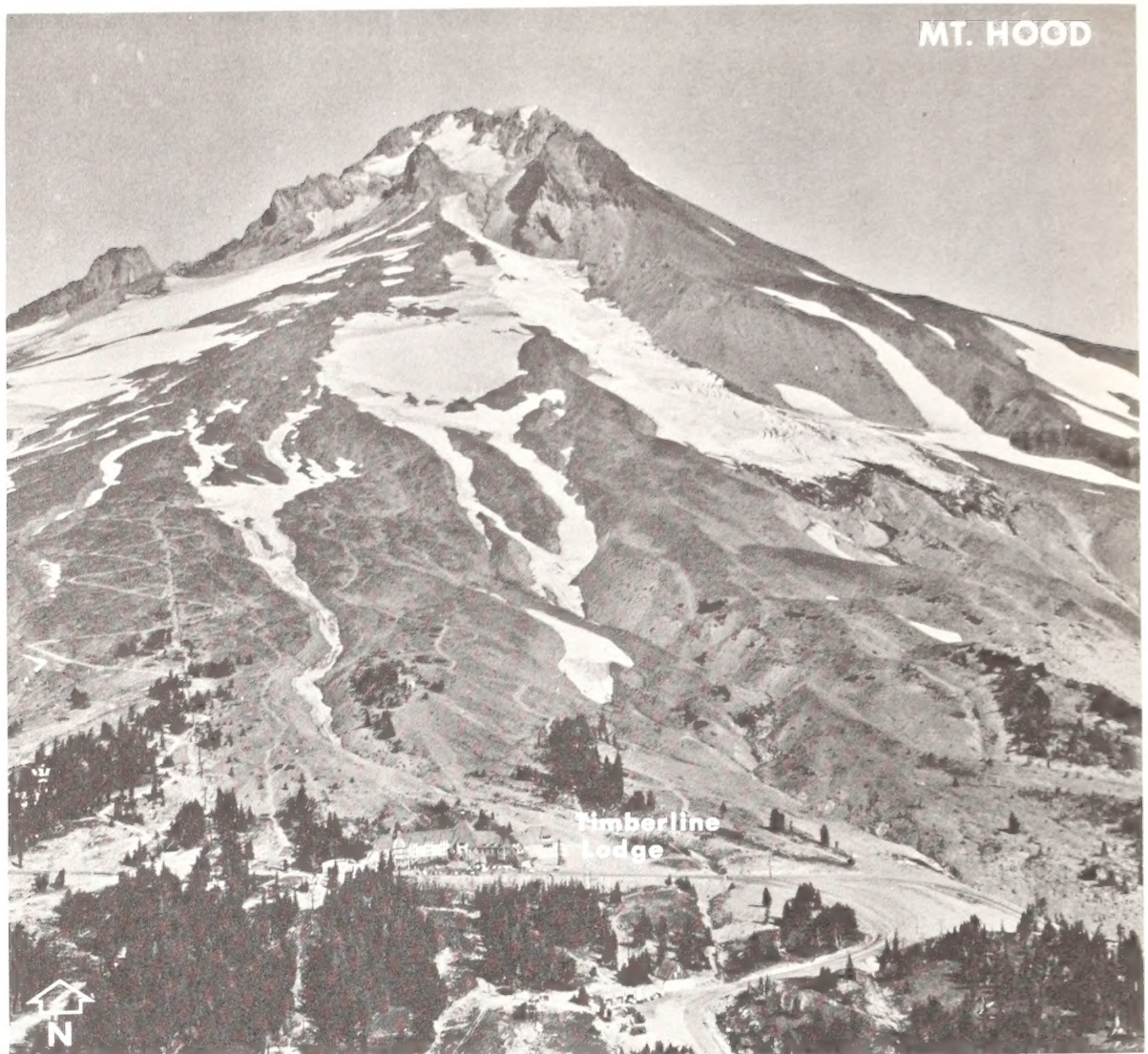
This area also includes part of the Bull Run Reserve, although it is not part of the physical watershed of the Bull Run River.











MT. HOOD. This subunit encompasses the glacial carved, snowcapped face of the mountain at and above timberline. A hostile but fragile alpine zone, the area includes land from 6000 feet elevation up to the summit at 11,235 feet.

All land in this subunit is public and administered by the U.S. Forest Service. About half of the area is a classified Wilderness Area with the balance either uncommitted or under the special use permits of Timberline Lodge and Mt. Hood Meadows Ski Areas. Timberline Lodge, constructed during the 1930s, has been acclaimed as a National Register Site and currently operates as a hotel and public ski area. Cloud Cap Inn on the north face is also a National Register Site, but is not as well known nor as spectacular as Timberline Lodge.

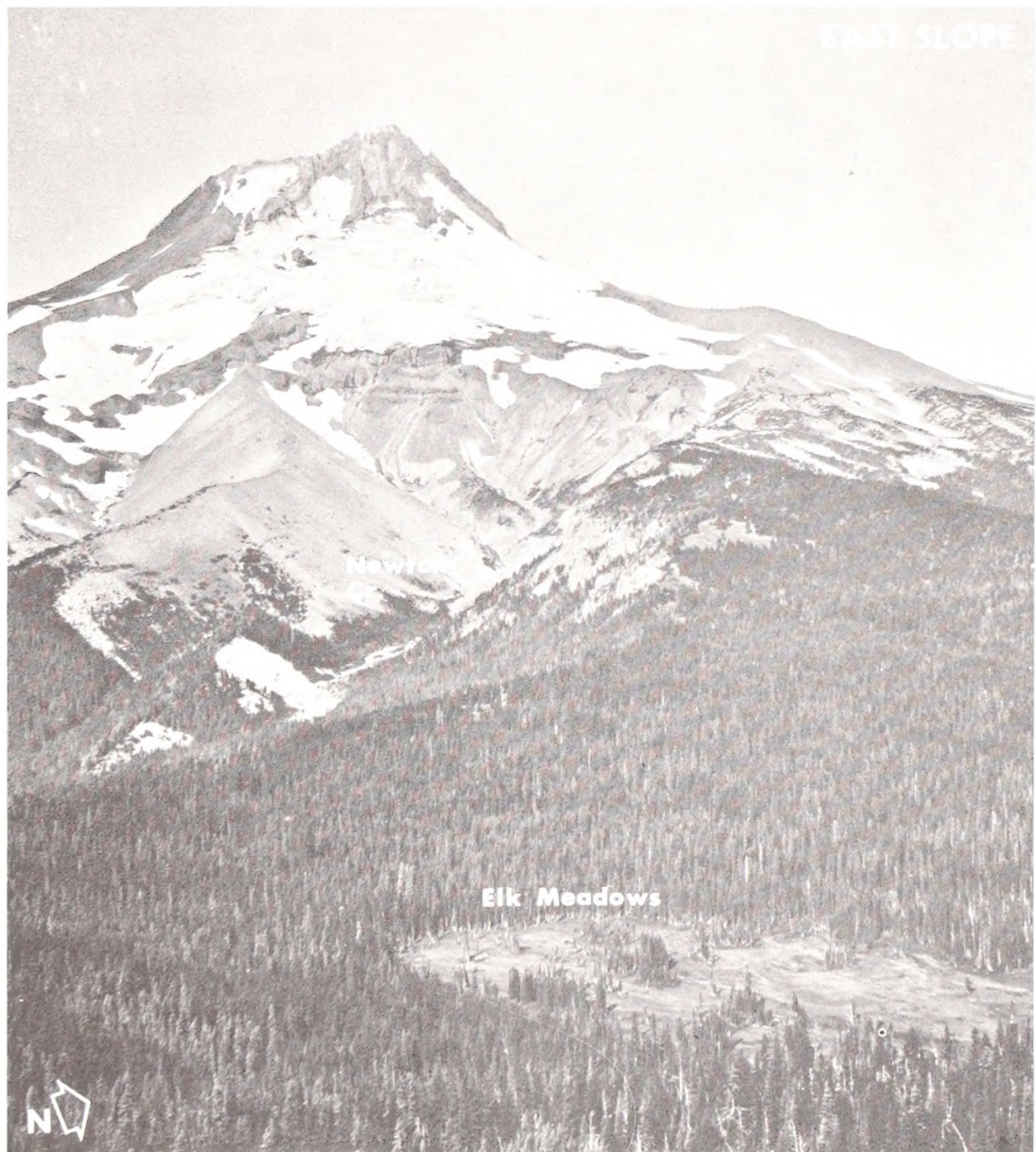
The mountain affords magnificent views of the lower countryside and other Cascade mountains including Mt. St. Helens, Mt. Adams and Mt. Jefferson. The alpine character of the mountain and spectacular views make it a popular area for both winter and summer outdoor recreation. Winter recreation is mainly centered around downhill skiing at Timberline Lodge and Mt. Hood Meadows. Summer recreation activities include day hiking and backpacking. Mountain climbing is a very popular year round activity.



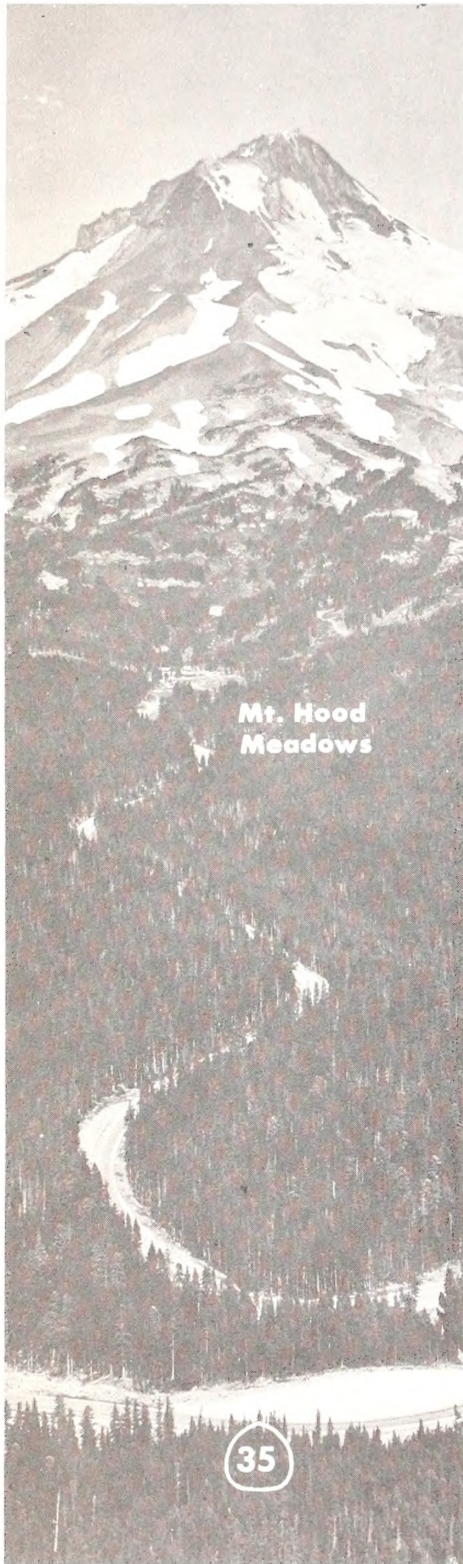
EAST SLOPE. The eastern lower slopes of Mt. Hood are included in this subunit. Weather conditions in this area tend to be somewhat more stable with less precipitation than the westside. However, heavy snowfall is common throughout the subunit. Bluegrass Ridge, Elk Meadows, Hood River Meadows, White and Hood River drainages are prominent physical features. Highway 35 runs through the area, accessing main activity areas. Most lands are administered by the U.S. Forest Service but some county ownerships (Hood River) exist within this subunit.

Major land use activities include outdoor recreation and timber harvesting. Commercial logging is an ongoing activity and provides a substantial source of county revenue. Although this area is less accessible to Portland, it is becoming increasingly popular for both summer and winter recreation. Downhill ski facilities are located at Mt. Hood Meadows and Cooper Spur. Other winter sports include snow hiking, snowmobiling and cross-country skiing. Several campgrounds and trails offer summer recreation opportunities.

A portion of this subunit is to be studied for its wilderness suitability.









NORTH APPROACH. The upper Hood River Valley forms the North Approach into the Planning Unit. Although it is 1½-2 hours from Portland and has less development pressure than the west approach, it is still experiencing growth problems. The communities of Parkdale and Mt. Hood are located here. Most of the land is privately owned under the home-rule jurisdiction of Hood River County, with the remaining lands administered by the state, county, U.S. Forest Service and Bureau of Land Management.

Fruit orchards and timber production are the major land uses and economic and employment mainstays of the area. The climate, favorable air drainage and good management of suitable agricultural soils support scenic and productive orchard areas. Agricultural products (apples, pears) are processed at Diamond Fruit Company in Parkdale. The subunit receives a seasonal influx of migrant labor which creates an important housing concern.

Highway 35, which runs the length of the subunit, provides a major route for movement of goods to the lower Hood River Valley as well as to other parts of the Planning Unit. Scenic driving is a popular activity along this route in the spring, summer and fall. In winter, Highway 35 provides a route for outdoor recreationists, particularly skiers to Mt. Hood Meadows and Cooper Spur.



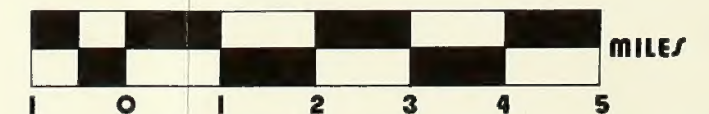




# MT. HOOD PLANNING UNIT



- Primary Road
- - - Secondary Road
- 26 U.S.
- 35 State
- S-39 Forest Service
- ..... Trail
- ▲ Campground
- ❄ Winter Sports Area
- - - Wilderness Boundary
- - - County Boundary
- - - National Forest Boundary









Background





## REGIONAL PLANNING SETTING

### STATEWIDE AND REGIONAL PLANNING

The Mt. Hood Interagency Planning Study has occurred within a state and regional planning framework. The 1973 legislature passed Senate Bill 100, known as the State Land Use Planning Act. This Act created the State Land Conservation and Development Commission (LCDC), whose members are appointed by the Governor. LCDC has the responsibility to administer statewide goals and guidelines for land use (see page 19), develop a permit system for activities of statewide concern, review and recommend to the legislature, areas of critical concern and review comprehensive plans for conformance with state goals and guidelines.

Also, during the 1973 legislative session, Senate Bill 769, the CRAG Bill, was passed. This bill established the Columbia Region Association of Governments (CRAG) as the regional planning authority for the Portland metropolitan area (Washington, Clackamas and Multnomah Counties). CRAG is responsible for preparing and maintaining a plan for the region in accordance with state goals and objectives; designating areas and activities of regional impact and establishing regulations for development and use of such areas and activities. CRAG must also review comprehensive plans now in effect or subsequently adopted by the member jurisdictions and assure conformance with state goals and guidelines.

In September 1976, CRAG's Board of Directors adopted goals and objectives that are intended "to give structure and direction to regional planning consistent with the statewide goals and to implement CRAG's statutory responsibility." CRAG is responsible for citizen involvement, planning processes and a series of plan elements which, when completed, will constitute the Regional Plan. The first plan element completed was the Land Use Framework Plan which was adopted by the CRAG Board in December 1976 and became effective February 5, 1977. The CRAG Framework Plan divides the region into three regional land use designations: urban, rural and natural resource. It also establishes a set of regional policies for managing growth.

### PLANNING IN ADJACENT AREAS

Land use planning in areas adjacent to the Planning Unit are in various stages of development. To the west of the Planning Unit, a community planning program for the Damascus, Boring, Sandy and Firwood area is being conducted by Clackamas County. Planning and zoning for these areas will be coordinated with the Mt. Hood Plan. Clackamas and Hood River Counties both have adopted schedules for amending all portions of their county plans and implementing ordinances to be consistent with the LCDC goals. This work will be completed in both counties in 1979.

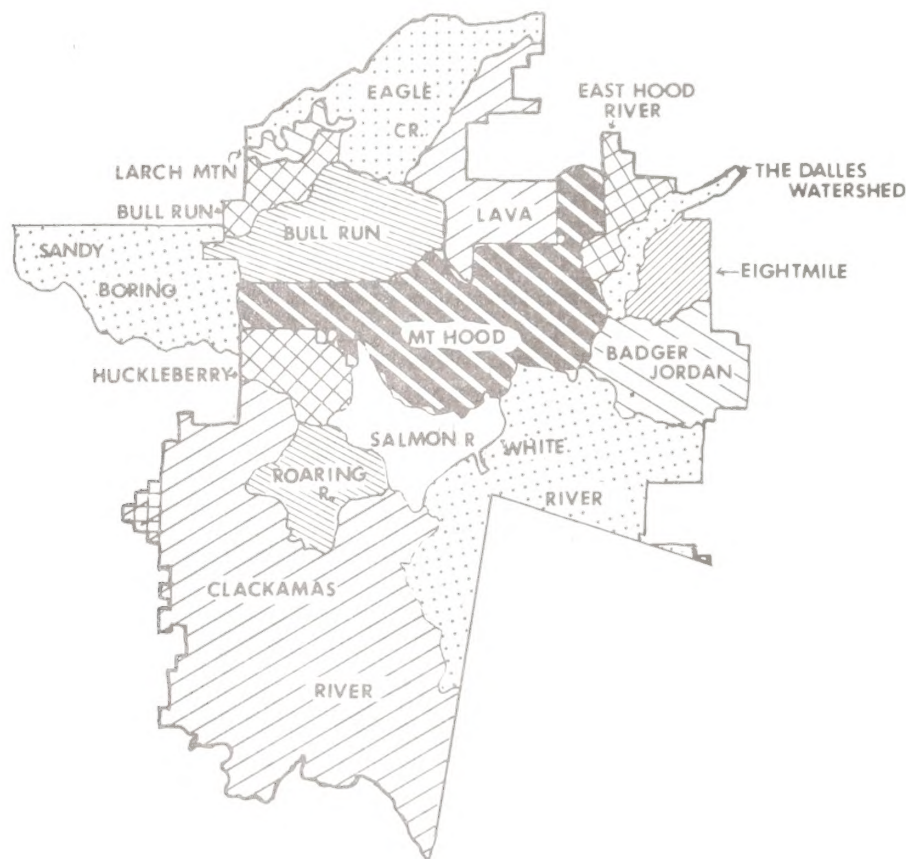
The Forest Service is also involved in planning for several planning units that border the Mt. Hood Unit. To the north, a Final Environmental Statement is being prepared for the Bull Run Planning Unit and should be completed in 1977. Approximately 17,900 acres of the Mt. Hood Planning Unit are within the Bull Run Reserve established to protect the City of Portland's



water supply. The portion of the Reserve in the Planning Unit does not lie in the physical drainage of the Bull Run River; the Reserve boundaries were designated in 1892 before the actual boundaries of the watershed were known. Currently, the portion of the Reserve in the Planning Unit is temporarily open for recreational use by a Congressional Act; Congress is now in the process of developing a new law for management of the watershed to resolve boundary and use issues. The Proposed Action cannot be implemented within the Reserve unless Congress changes the law. The Proposed Plan in this document is consistent with adopted plans for The Dalles Watershed, Salmon River and Huckleberry Planning Units. A Final Environmental Statement outlining a proposed management direction for the Badger/Jordan Planning Unit will be distributed in September 1977. Planning for the Lava, East Hood River and White River Planning Units has not yet begun.

A Draft Environmental Statement for the Mt. Hood Meadows Ski Area Master Plan was made available to the public in May 1977. Mt. Hood Meadows is a ski permit area on Forest Service lands in the Mt. Hood Planning Unit. The Master Plan will provide specific management direction within the ski permit area. A Master Plan for the Timberline Ski Area has gone through the environmental statement process and has been adopted.

**Map 3**



## PLANNING PROCESS

The planning process which produced this document began early in 1970 when Clackamas and Hood River Counties and state and federal agencies started to reevaluate their land use regulations in the Mt. Hood area. Planning objectives adopted in the Clackamas County "Preliminary Mt. Hood Community Plan" (1973) and the "Hood River County Plan" (1973) called for a new approach. A principal objective was to provide a means whereby the many agencies with jurisdiction in the area could: (1) integrate existing and future plans and (2) communicate about decisions affecting the whole area. Another objective was to develop environmental carrying capacity information which could be used in examining and directing population growth and land use activities. Initial interagency goals were based on these planning needs and data allocation was initiated to provide the necessary base of resource information. The early focus of this effort was a land suitability study which determined which lands were most suited for what purposes based on analysis of their physical characteristics (e.g. geology, topography, vegetation, soils, watershed values and use requirements of various activities). A land suitability map for the Planning Unit is inserted in the back of this document.

Base maps were produced identifying airsheds, visual variety, wildlife diversity, fire hazards, present land uses and other factors to be considered in land and resource allocation for the area. These base maps are available at the Mt. Hood National Forest and the two county planning offices. The Citizen Advisory Committee and the Planning Team then developed proposed objectives or goals. Public views were solicited on these objectives and used when the objectives were revised and adopted by the Executive Committee. The land suitability analysis, existing land use information and public response to the objectives were used by the Planning Team and the Citizen Advisory Committee to develop four land use "Futures" or management concepts for the planning area. The Futures were then made available to the public through media announcements, open house meetings and distribution on mailing lists. The Proposed Plan and Alternatives in this document were developed from public responses to these Futures, definition of environmental capacity elements and their limitations, recognition of statewide and Planning Unit goals, land suitability analysis and other analyses (including sewerage studies, an economic analysis and regional growth projections). Technical interagency reviews of proposed projects have provided decision-making agencies with expertise that may not otherwise have been available. They also provided review and comments from a variety of viewpoints, broadening the scope of input into decisions. The continuation of this assistance will provide agency decision-makers with a more complete picture of the interrelationships and a more complete picture of effects of land use decisions in the Mt. Hood area.



Figure 2

## DECISION PROCESS

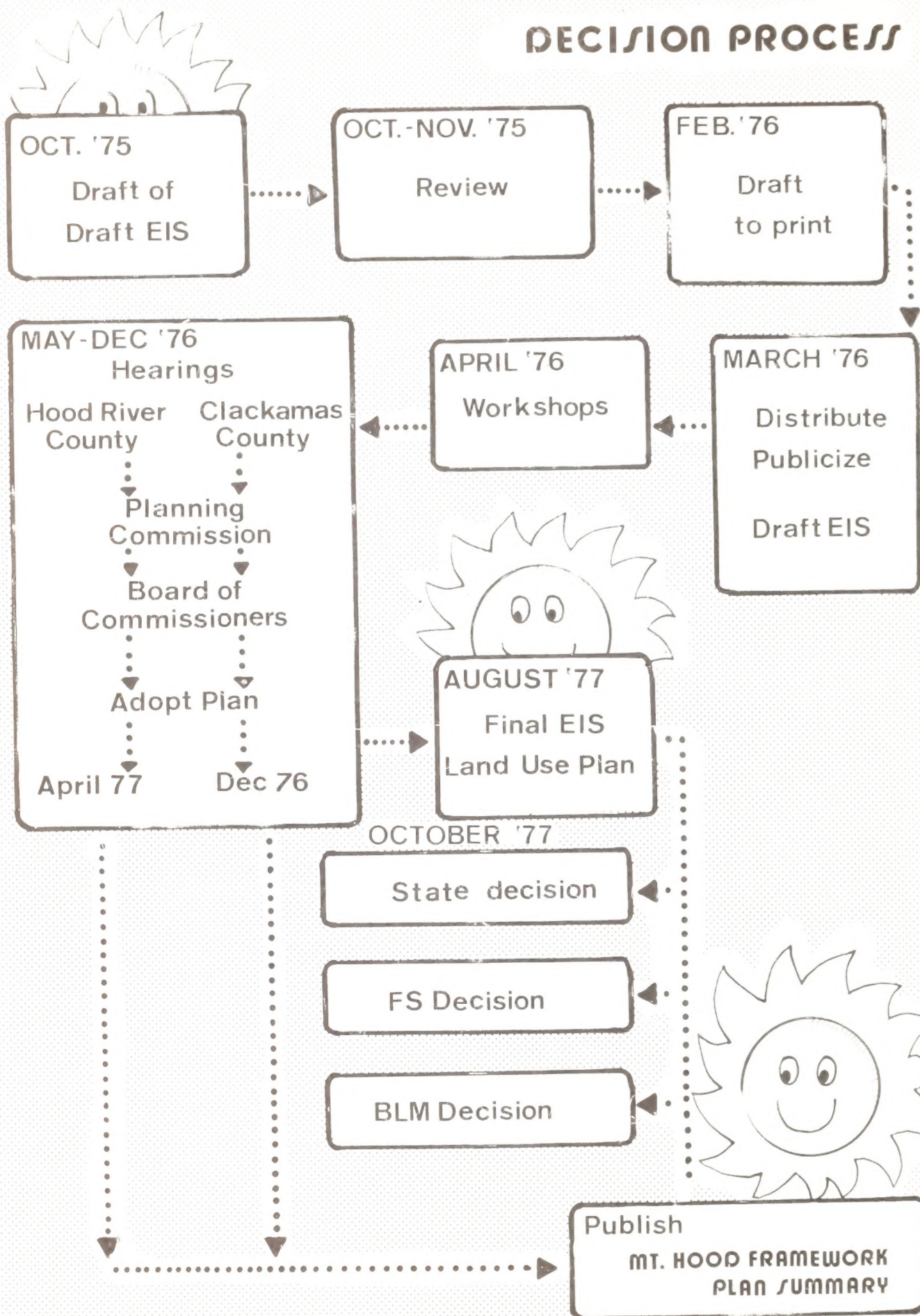


Figure 2 outlines the process that was and will be followed in arriving at the land use decisions for this Planning Unit. It is important to recognize the distinct separation of decision authority. The decisions affecting private lands in Clackamas County and Hood River County were accomplished at a local level through the traditional hearing process. Once these county decisions were made, they were incorporated in the Final Environmental Statement along with the supporting recommendations of the Forest Service, BLM and state agencies. After the decision on the Final Environmental Statement is made by the Forest Service and BLM, then an inter-agency framework plan summary will be published. Following this, implementation and monitoring will be pursued by the public and cooperating agencies. Implementation will include a broad range of activities such as water and sewer improvements, detailed community designs, transportation plans, timber sale programs and wilderness studies.

The planning process has involved a number of different agencies other than those who signed the cooperative agreement. The Portland Metropolitan Area Boundary Commission, Department of Environmental Quality, Department of Water Resources, Oregon Department of Fish and Wildlife and many others have provided data, information, review and comments at various stages in the study. Special reports prepared by some of these agencies for the study are listed in Exhibit E.



EXISTING PLANS

## FEDERAL AGENCIES

Forest Service. The Mt. Hood National Forest has two District Multiple Use Plans covering National Forest land in this Planning Unit. The area west of Mt. Hood is included in the Zigzag Ranger District Multiple Use Plan (1969) and the eastside is included in the Hood River Ranger District Plan (1970). They represent a collective effort of the past Rangers, their staff and local representatives of the public in developing a plan which provides direction to on-going activities in the Ranger Districts. Resource data used for these plans included existing surveys and local experience of the Forest staff. There are additional functional plans which are based on these decisions. These include transportation plans, timber management plans and recreation plans.

The principal weaknesses in these plans are: (1) they were not based on a systematic interdisciplinary approach for determining land management suitability, (2) they did not involve a thorough testing of alternatives and (3) public and other agency participation in the process was negligible.

Within the last two years, the Mt. Hood Forest has completed a plan for expansion of the facilities at Timberline Lodge and an Off Road Vehicle Management/Use Plan. These plans and the completed Planning Unit Management Plans have surmounted past weaknesses with extensive land suitability analysis and public involvement.

BLM. The Cascade Area Management Framework Plan of 1971 covers BLM land in the Unit. It is a multiple use plan describing resource uses and activities on BLM land. The plan was developed in a similar manner as Forest Service Multiple Use Plans. However, the District held a series of hearings throughout this section of the state to receive public comment. Other than the public involvement process, the plan has similar weaknesses to the older National Forest plans. The Mt. Hood Interagency process has resolved these differences.

## STATE PLANS

State Forestry Department. The State Forestry Department has a Forest Resource and Timber Management Plan and administers the State Forest Practices Act. The plan describes existing timber resources and management activities in all state lands to be used for timber production. This plan has weaknesses similar to the federal plans in terms of data collection and plan preparation. The emphasis of the State Forestry Plan deals primarily with timber management. The State Forest Practices Act is the chief regulating mechanism for forest practices on private, county and state lands.

## COUNTY PLANS

Clackamas County. The amended "Mt. Hood Community Plan" applies to the private lands extending from Cherryville to the county line east of Government Camp. Issues and problems within the area are addressed with the goal of assuring continued environmental quality. Key provisions and policies include: standards for hillside conservation, planned developments, scenic highway designations, stream buffering and setbacks for all new development, definition of essential service areas, grouped and more compact business centers, marshland preservation, protection of historic sites and major open spaces and impact review of all significant development proposals.

The plan represents a departure from previous efforts to administer land use in the private corridor, establishing improved guidance, standards and priorities for development, along with some strong resource protection objectives. Issues such as the level of sewage facility development and housing densities were resolved in recent amendments based on the studies made of the mountain's environmental carrying capacity and public input. Clackamas County has recently completed a detailed study of sewage system alternatives for its portion of the Planning Unit and will be reviewing the study through public hearings prior to making a decision. New zoning standards to further implement Clackamas County's Community Plan will be established by the end of 1978.

Hood River County Comprehensive Plan. Hood River County adopted its Comprehensive Plan in the fall of 1973 after a three year effort which included preparation by a planning consultant and considerable public participation. The county has now begun to develop a series of more specific area comprehensive plans, beginning with the "Mt. Hood Planning Unit Plan" for the upper portion of the Hood River Valley.

Objectives relating to forest, farm, residential, commercial and industrial land use and policies and standards for these activities are outlined in the overall County Comprehensive Plan and amplified in area plans. The overall county plan includes analysis and specific recommendations for transportation, recreation facilities, schools and other public facilities and housing. As a result of participation in the interagency planning effort, the county's "Mt. Hood Planning Unit Plan" has land use and public facilities elements which are now fully coordinated.



## PLANNING GOALS

Goals were established to guide the planning effort for the Mt. Hood area during the development of this plan. All the planning framework policies and plan alternatives were derived from these basic goals for the Planning Unit.

### STATEWIDE GOALS

The Oregon Land Conservation and Development Commission (LCDC) statewide land use planning goals were an important and early consideration in setting goals for the Planning Unit; the statewide goals require strong citizen involvement and interagency coordination in addition to addressing each of the basic elements of comprehensive planning. In Oregon, comprehensive plans must meet the following land use goals:

- Citizen Involvement. To develop a citizen involvement program that ensures the opportunity for citizens to be involved in all phases of the planning process.
- Land Use Planning. To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions. City, county, state and federal agency, and special district plans and actions related to land use shall be consistent with the city and county comprehensive plans and regional plans adopted under ORS 197.705 through 197.795.
- Agricultural Lands. To preserve and maintain agricultural lands.
- Forest Lands. To conserve forest lands for forest uses.
- Open Spaces, Scenic and Historic Areas and Natural Resources. To conserve open space and protect natural, scenic and historic resources.
- Air, Water and Land Resources Quality. To maintain and improve the quality of the air, water and land resources of the state.
- Areas Subject to Natural Disasters and Hazards. To protect life and property from natural disasters and hazards.
- Recreational Needs. To satisfy the recreational needs of the citizens of the state and visitors.
- Economy of the State. To diversify and improve the economy of the state.
- Housing. To provide for the housing needs of citizens of the state.
- Public Facilities and Services. To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.

- Transportation. To provide and encourage a safe, convenient and economic transportation system.
- Energy Conservation. To conserve energy.
- Urbanization. To provide for an orderly and efficient transition from rural to urban land use. Urban growth boundaries shall be established to identify and separate urbanizable land from rural land.

## PLANNING UNIT GOALS

The goal setting process for the Planning Unit began in the spring of 1974. The Citizen Advisory Committee (CAC), member agencies and the interagency planning team combined efforts to develop a set of proposed goals for the Mt. Hood Planning Unit. These proposed goals were distributed in a land suitability brochure to the public from June to August 1974. The public was asked for their review and comments, on a response form provided for their comments.

Based on the public input, the CAC and the planning team submitted goal recommendations to the Executive Committee. The Executive Committee reviewed the public input and the recommendations and adopted the following goals for the Mt. Hood Planning Unit:

### Guiding Premises

- All goals are governed by the principle of protecting the mountain area as a unique resource and staying within its capacity for sustained use and enjoyment.
- Land is a resource not a commodity. No one special use will dominate.

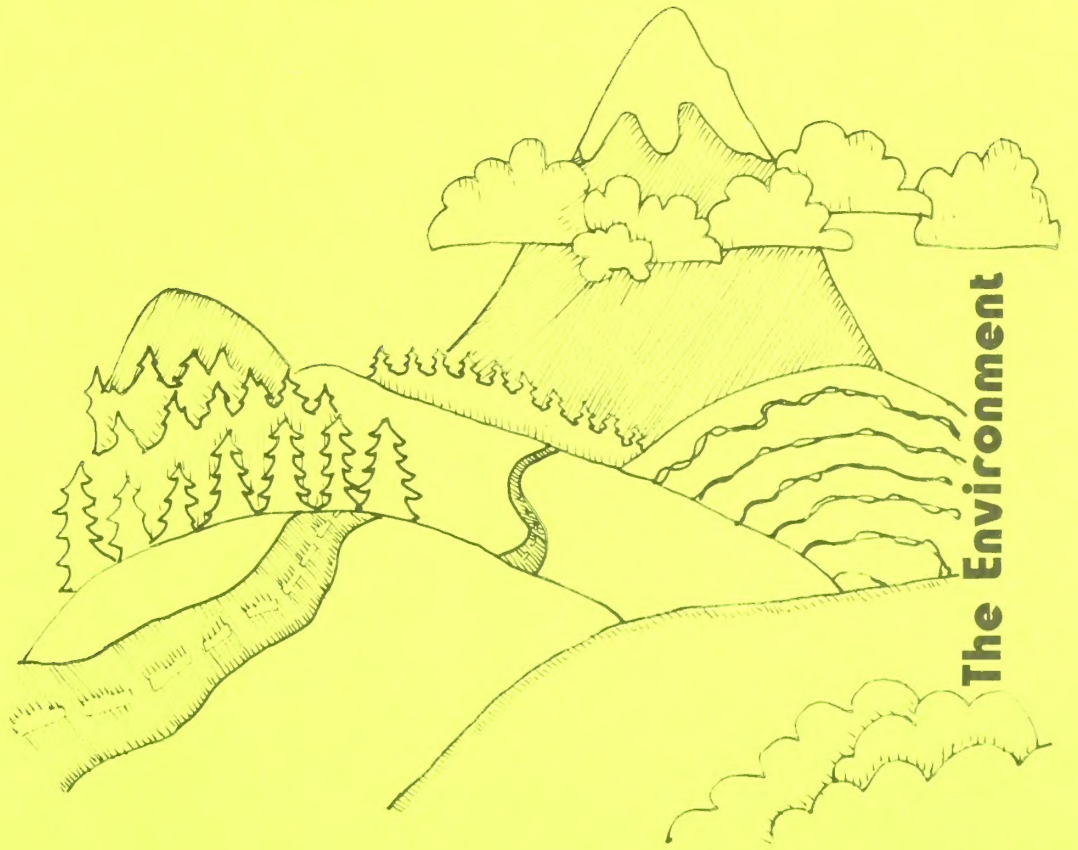
### Goals to Ensure

- A compatible variety of recreation opportunities.
- Protection of the existing Mt. Hood Wilderness; provision of adequate wilderness land that meets wilderness criteria.
- Retention of the unique visual character and scenic variety associated with the mountain landscape. Specifically avoid strip development along major access corridors.
- Protection of all wetlands, streamsides, major river corridors and floodplains for natural, scenic and recreation purposes.
- Identification and protection of significant historical and archaeological sites or structures (e.g. Timberline Lodge and Old Barlow Road, etc.).



- Protection and provision of adequate habitat for wildlife species native to the area.
- Conservation of land suitable for farming as a critical resource.
- Protection of life and property subject to floods, landslides, fire and other natural hazards and disasters.
- Development of energy and mineral resources will be compatible with environmental quality.
- Provision for long term economic opportunities serving other planning goals.
- Communities within the Planning Unit maintain individuality, physical separation and diversity of character as related to the mountain setting.
- Provision for a balanced transportation system to serve area needs.
- Provision for housing variety, adequate business opportunity and a coordinated arrangement of service facilities, consistent with environmental capacity.
- Established business areas and areas previously subdivided and suitable for housing have priority for new development.
- Effective plan implementation including adequate funding. Agencies will work together in review, monitoring and enforcement of resulting policies, standards and ordinances.
- Opportunities for citizen participation in the preparation, implementation and review of the Mt. Hood Interagency Plan.
- Responsible timber management of suitable forest lands on a sustained yield basis.
- Protection, maintenance and orderly restoration of air, water and soil qualities.
- Maintenance of a long range supply of water for both consumptive and nonconsumptive uses.

The discussion beginning on page 165 compares these goals to the LCDC Statewide Land Use Goals and evaluates how well the Proposed Plan and Alternatives meet the Statewide Goals.



## The Environment





## THE ENVIRONMENT

In this description, the environment of the Mt. Hood Planning Unit is divided into two broad categories: physical and biological characteristics, and land use, social and economic characteristics. Physical and biological characteristics include discussion of natural factors such as geology, soils and wildlife. The other categories relate to land use activities and social and economic conditions.

### PHYSICAL AND BIOLOGICAL CHARACTERISTICS

#### GEOLOGY AND GEOLOGIC HAZARDS

The Mt. Hood Planning Unit lies within the Cascade Mountain Range which consists of the Western Cascades and the younger High Cascades to the east. Elevations range from 11,235 feet on Mt. Hood, to 800 feet on the mountain's slopes. The complex geology of the area reflects the volcanic history and glaciation of Mt. Hood and recent stream deposition. Volcanic material, flank sediments and alluvium have been accumulating since Miocene times (25 million years ago) and were accompanied by regional uplift, structural deformation and erosion by stream and ice action. These processes resulted in extremely varied and discontinuous rock types related to the mountain and its deeply dissected drainages. Mass wasting\* is accelerated by stream dissection, weak volcanic and sedimentary bedrock, high precipitation and related soil and rock saturation conditions. The structure of the area consists of flank deposits of volcanic debris and sediments which slope outward from the peaks along the axis of the Cascade Range. These slopes have been modified by the faulting and folding of the older underlying formations.

The planning investigation involved compilation of a geologic map base from published data, air photo interpretation and field mapping. Landslide information was developed from air photo interpretation and field reconnaissance and previous timber sale studies. Construction materials information was obtained from the ongoing inventory of materials sources, existing quarry reports, current quarry operations and materials testing. Energy data and volcanic and seismic activity information were developed from previously published data, lease activity and observations by personnel involved in current studies in these areas. Areas of geologic interest were located from personal observations during the course of normal forest geologic reconnaissance and published data by other investigators. All this detailed information is available at the Mt. Hood National Forest Supervisor's Office.

\*See Glossary



Geologic Units. The geologic units within the Planning Unit include intrusive and extrusive igneous rocks; volcanic breccias, cinders and tuffs; volcanic and shallow water sediments; and deposits of glacial, mudflow, alluvial and talus materials. Representative formations are Columbia River basalts, Sardine volcanics, Cascade andesites, Troutdale and Dalles gravels, Mt. Hood pyroclastics and glacial outwash, and Zigzag and Hood River alluvial gravels. The majority of these units originated from vents of the ancestral Cascades or recent vents of Mt. Hood and lesser surrounding volcanoes. Mudflow and glacial deposits originated on the slopes of these volcanoes. Alluvial gravels and talus are the result of mass wasting and stream transportation of the above units.

Modification of the geologic formations by erosion varies depending on the resistance of the major rock type. Lava flows usually cause steep, bold landforms such as Zigzag Mountain, Tom Dick Mountain and Last Chance and Bald Peaks. Volcanic breccias and pyroclastic deposits form rounded and less steep slopes with high density dendritic stream patterns. Glacial, mudflow and alluvial materials from moraines and terrace deposits along present stream drainages. Volcanic material on Mt. Hood is being deeply dissected by the movement of ice and snow and by the erosive action of rapid snow melt runoff.

Permeability\* of the geologic units ranges from extremely high (several hundred gallons per minute) in the alluvial gravels to consistently low yields in the volcanic breccias and intrusives (values often less than 10 gpm). Rates in lava flow deposits are variable depending on joint frequency and weathering and may extend to either extreme.

Features of Geologic Interest. Points of geologic interest within the Planning Unit are generally related to the Mt. Hood volcano and the associated glacial activity on the upper peak. Other features of geologic interest are related to mass wasting processes which occur on the lower mountain slopes.

Glaciers. Numerous active glaciers exist on the upper mountain slopes. These ice rivers have developed many of the classic erosional features associated with ice action. They include ice falls, crevasses, cirque basins and lakes, lateral and terminal moraines and striated (grooved) bedrock.

Fumeroles. Crater rock and the adjacent basin on the south flank have active fumeroles (steam and gas vents) which can be observed by a hike from Timberline Lodge. These vents are remnants of the original eruptions and indicate a continuing heat source.

Intrusive Plugs and Dikes. Numerous features of intrusive volcanic activity are evident along Highway 26 in the Laurel Hill and Still Creek areas. These include basalt dikes, coarse

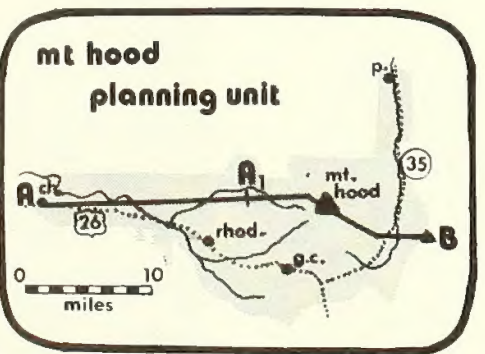
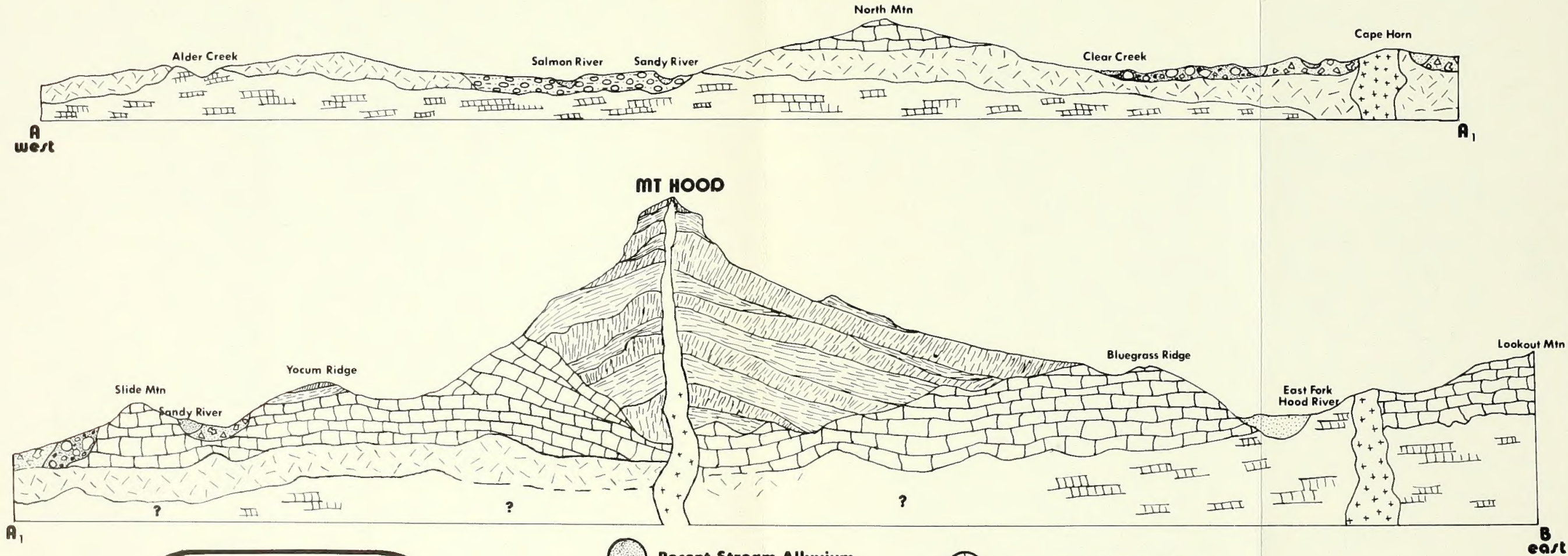
\*See Glossary



Figure 3

# GEOLOGIC STRUCTURE SECTION

Mt Hood Planning Unit



- |  |                        |  |                                |
|--|------------------------|--|--------------------------------|
|  | Recent Stream Alluvium |  | Cascade Andesites & Basalts    |
|  | Valley Terrace Gravels |  | Rhododendron Formation         |
|  | Mud Flow Deposits      |  | Yakima (Columbia River) Basalt |
|  | Glacial Deposits       |  | Intrusives                     |
|  | Mt Hood Volcanics      |  |                                |

Modified from W.S. Wise, 1969





grained igneous rock (quartz diorite) and joint systems. These features, along with the main mountain mass and adjacent satellite cones and lava flow, record much of the High Cascades volcanic history.

Mudflows and Glacial Outwash Gravels. These features existing along Sandy, Zigzag and White River Canyons record the catastrophic activity of alpine and volcanic erosion. Mudflows are the result of saturation and failure of large masses of cinder and ash during and subsequent to volcanic eruptions. Glacial outwash deposits represent, in part, failure of glacial dams and resulting torrential runoffs which still periodically occur.

Waterfalls. These features are numerous on the lower flanks of the mountain and reflect differential erosion of weak and resistant geologic formations which make up the mountain flanks and foundation. Here, soft formations erode below the resistant flows and form dramatic ledges over which streams pass in a series of falls and basins.

Volcanism and Seismic Potential. The Mt. Hood Planning Unit lies within an area that has a history of both volcanic and seismic (earthquake) activity. Nearby Mt. St. Helens has been volcanically active as recently as 1857. Mt. Hood has had no scientifically documented eruptive activity within the last 2000 years. However, active steam vents and recent earthquakes tentatively located near the mountain are indications that an eruption potential exists, although it is impossible to predict when an eruption of Mt. Hood could occur.

Research indicates that Mt. Hood has rock types which are associated with lava flows, mudflows and violent eruptions similar in some respects to those related to the explosive formation of the caldera at Crater Lake. If an eruption were to occur, large mudflows down the Sandy River and extensive distribution of volcanic ash could result in resource loss and property damage to communities in the Unit and Salmon River drainage, and possible pollution of the Bull Run Watershed by the ash (Beaulieu, 1974).

There have been few recorded instances of seismic activity in the Mt. Hood area. The first recorded event is thought to have been in 1896 when an earthquake is believed to have triggered an avalanche. Shocks were experienced in the Bull Run area in 1919 and more recently, in Government Camp in 1974 and the northeast or south side of the mountain in 1976. Seismic activity in the Portland and Puget Sound area also influences the Planning Unit.

The probability of a major quake occurring on Mt. Hood is remote (Couch, 1976). However, experts do vary widely in their projections for seismic activity in the area. The Uniform Building Code Handbook (1970) places Mt. Hood in a zone indicating that moderate damage may be expected with maximum expected intensity of VII (Mercalli Scale equivalent to 5.5-6.1 on Richter Scale). A study done for









Bonneville Power Administration (1973) placed Mt. Hood in a zone where the maximum expected intensity was VIII. Differences in the ground composition will vary the intensity of an earthquake in a specific location.

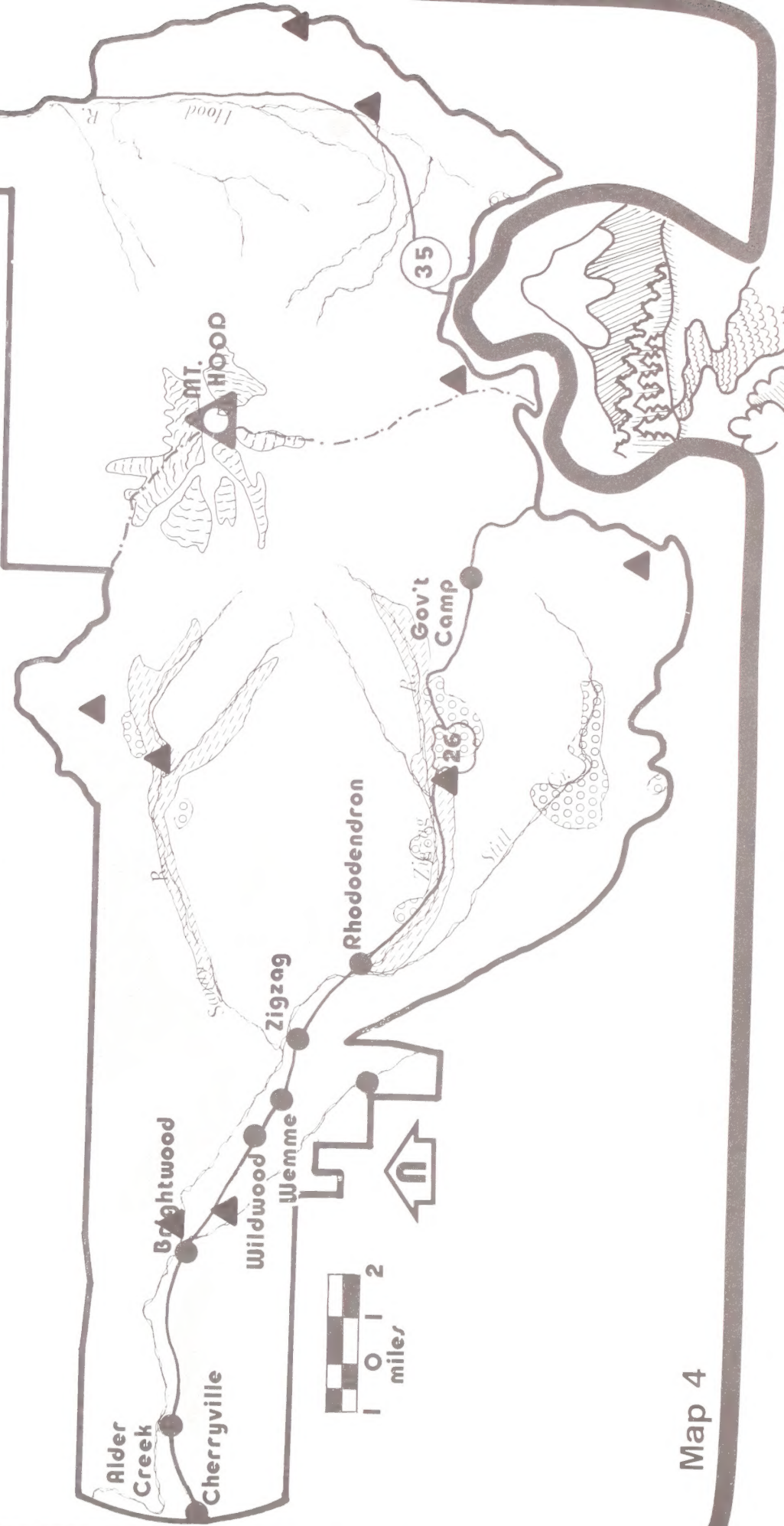
While volcanic and seismic activity cannot be controlled and may not appear to be a significant hazard because activity has not been great in the recent past, their potential impact could be extremely significant, particularly upon the major support systems of the Portland metropolitan area (i.e. transportation, power and water). Appendix H discusses volcanic and seismic potential and effects in greater detail.

Other Geologic Hazards. In addition to hazards from volcanism and earthquakes, there are specific geologic hazard areas in the Planning Unit. These include areas with potential for landslides, avalanches, erosion, high water table, flooding and compressible soils. More detailed mapping and description of hazards are available from the counties and federal management agencies, and are identified on Map 4. Geologic hazard areas affect approximately 130,900 acres or 8 percent of the Planning Unit. These areas have a significant influence upon patterns of use. Recreation, timber harvest, roads and community development patterns are often adjusted due to the presence of hazard areas, either through application of special management techniques (e.g. additional engineering safeguards in a landslide area in road building) or leaving the area undisturbed. Many of these areas such as floodplains and wetlands provide excellent wildlife habitat.

# mt. hood planning unit

## GEOLOGY

- |   |                       |   |                       |
|---|-----------------------|---|-----------------------|
|  | Mudflow Deposit       |  | Geologic Hazard Area  |
|  | Intrusive             |  | Fumerol (Crater Rock) |
|  | Glaciers and Moraines |  | Rock Quarry           |



Map 4



## MINERALS, ROCK AND ENERGY

Mineral Deposits. Areas like the Planning Unit, which are dominated by extrusive volcanics, breccias and flow rock, do not have highly economic deposits of metallic and nonmetallic minerals. Deposits of metallic and nonmetallic minerals are confined to minor shows of cinnabar and other sulfides near volcanic intrusives. These have not been of sufficiently high grade to be worked on a commercial basis. There are presently no actively producing metallic or nonmetallic deposits in the Planning Unit and the potential for future discovery is considered extremely low.

Construction and Building Materials. Natural and crushed sand and gravel aggregate, riprap stone and building stone are produced in significant quantities within the Planning Unit. Sand and gravel pits are located in the alluvial and glacial deposits along the Sandy, Zigzag and White River drainages. Quarry operations are presently operating within the lava flows of both the Columbia River basalt and the Cascade andesite formations. These quarries produce several hundred thousand cubic yards of crushed rock annually.

A byproduct of crushing operations in some quarries is the production of oversize rock. This material is utilized for riprap protection of streambanks, earth embankments, road cutslopes and other structures requiring protection from erosion or weight loading.

There is increasing demand for natural stone as decorative building material. Quality andesite and basalt rock are being used to fill this need.

Operational quarries within or adjacent to the area are listed in the following table along with rock type, primary use and estimated reserves.

Name	Location	Rock Type	Utilization	Reserve (CY)
Brightwood	S25,T2S,R6E	Basalt	Crsh aggreg	200,000
Mud Lake	S2,T4S,R8½E	Andesite	"	300,000
Tower	S24,T1S,R8E	Basalt	"	50,000
Old Maid	S21,T2S,R8E	Mudflow	Sand & gravel	200,000
White River	S16,T3S,R9E	Glacial	"	500,000
Brightwood	S24,T2S,R6E	Alluvium	"	20,000
Dollar	S20,T1S,R9E	Andesite	Crsh aggreg	200,000
Marco Creek	S13,T1S,R8½E	"	"	100,000
Hiyu	S33,T1S,R8E	"	"	250,000
Laurel Hill	S16,T2S,R8E	Quartz	"	50,000
Goodfellow	S5,T2S,R7E	Andesite	"	250,000
Bald Butte	S10,T2S,R8E	Basalt	Stone	50,000
Clear Creek	S28,T1S,R9E	"	Crsh aggreg	50,000
Robinhood	S5,T3S,R10E	"	"	50,000
Green Lake	S24,T4S,R9E	Andesite	"	200,000
Total Aggregate Reserve				1,750,000 CY
Total Sand and Gravel Reserve				720,000 CY

The geologic formations which will provide acceptable aggregate and sand and gravel within the Planning Unit are extensive. With adequate exploration and proper development, the reserves of this resource should provide adequate supplies for both governmental and private use for well in excess of 100 years.

Forest Service use of aggregate averages 2000 cubic yards per year per quarry. At this rate, existing reserves will supply Forest Service needs in the area for 67 years. Sand and gravel use averages 10,000 cubic yards per year. Present quarries will meet projected needs for approximately 72 years.

Geothermal Energy. Recent volcanism along the crest of the Cascades in Oregon and existing hot springs activity indicate that prospectively valuable geothermal resources may occur in the area. Concentrations of geothermal heat are stored in porous rock close to the earth's surface which are referred to as a geothermal reservoir. These reservoirs contain hot water or steam which transfers heat energy from deep sources to depths shallow enough to be available for use.

A 14 square mile area on Mt. Hood has been designated as a Known Geothermal Resource Area (KGRA) by the U.S. Geological Survey. This designation indicates that the area warrants further exploration to study the potential for development. However, approximately half of the Mt. Hood KGRA is within an existing wilderness area and therefore, under Forest Service regulations, would be unavailable for development. Some experts believe the Mt. Hood Planning Unit may have an economically significant geothermal resource, but exploration would be needed to determine the characteristics of the resource.

To be economically significant, geothermal reservoirs must have the following characteristics: (1) relatively high temperature (i.e. 150° to 400°F), (2) depths shallow enough to permit drilling (i.e. under current technology, 10,000 feet or less), (3) sufficient rock permeability to permit continuous flow of water or steam for heat transfer and (4) sufficient water recharge to maintain production over many years (Geothermal Resources Council, 1972).

Active exploration in the Planning Unit began in 1976 when the three year Mt. Hood Assessment Project was initiated. The study covers a 132 square mile area around Mt. Hood and is being sponsored by the U.S. Geological Survey, the Energy Research and Development Administration, the Forest Service and the Oregon Department of Geology and Mineral Industries.

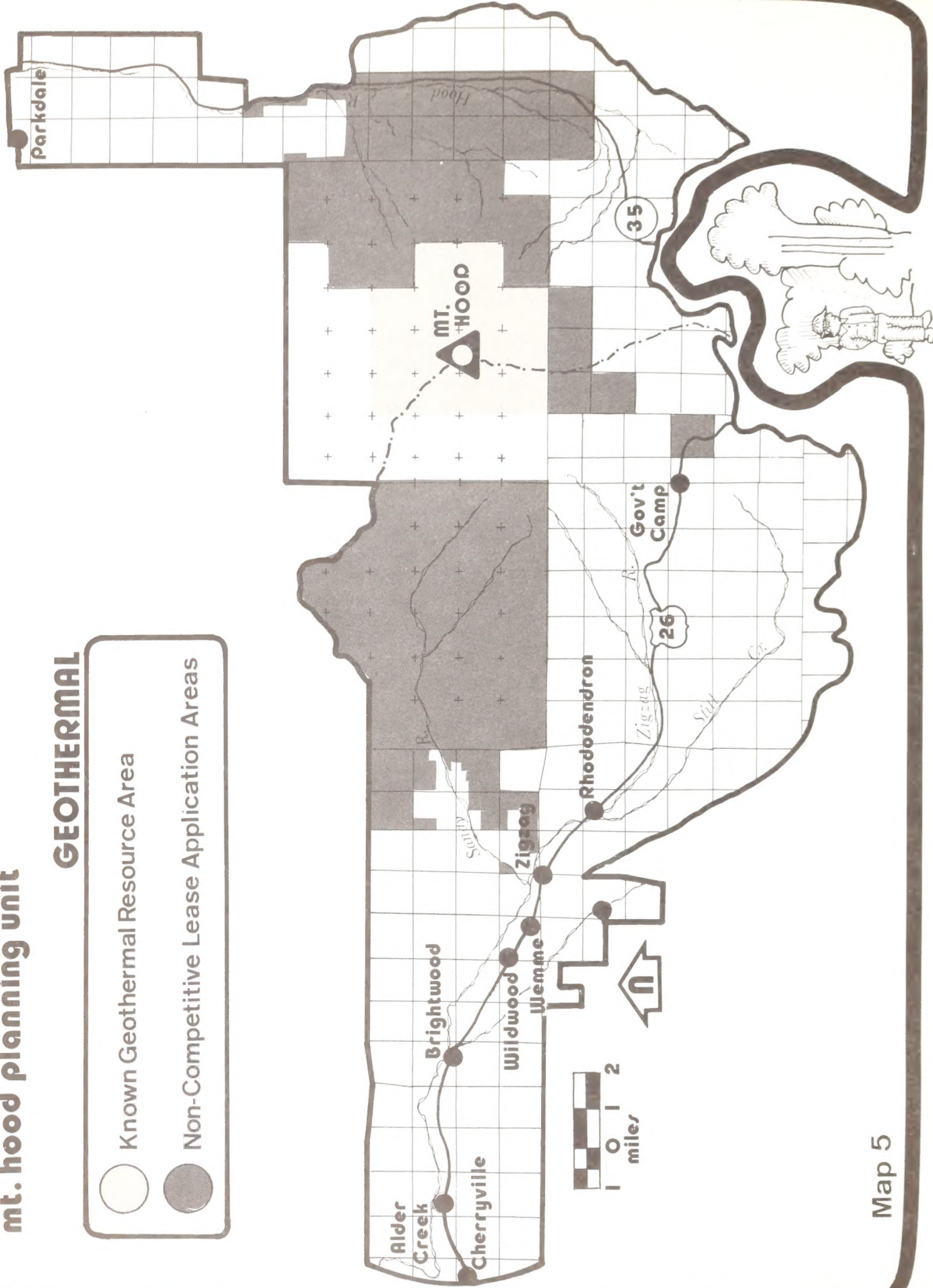
On federal lands, leasing and operating regulations follow the Geothermal Steam Act of 1970. Prior to leasing or issuing of permits for exploration and development, environmental analysis reports or environmental statements will be prepared by the federal land management agency and USGS. The federal land agency and USGS are responsible for issuing prospecting permits prior to leasing. After leasing, they continue to



# mt. hood planning unit

## GEOTHERMAL

-  Known Geothermal Resource Area
-  Non-Competitive Lease Application Areas



provide exploration and development permits, subject to all applicable local, state and federal laws and requirements.

On private, county or state lands, development must follow state and local requirements. 1/ Geothermal lease applications have been received for federal lands in Section 24, T.3S, R.8½E and Section 7, T.3S, R.9E, W.M. Oregon and on 30 square miles of land along the south and east boundaries of the Mt. Hood Wilderness. An additional 36 square miles have been filed upon west of the mountain in the upper Sandy River drainage basin (see Map 5). Future applications are anticipated in the upper Hood River drainage.

The geothermal leasing procedure 2/ for National Forest and BLM lands is described in Figure 4. Leases can be issued to any citizen (18 or older), association, corporation and governmental unit; but cannot be for less than 640 acres or more than 2560 acres. No lessee can control over 20,480 acres in any one state. Administration of the federal leasing program is shared by the U.S. Geological Survey (USGS), the BLM and National Forest in the Planning Unit. USGS is responsible for the technical aspects of geothermal exploration and development, supervises on-the-ground activities and assists in preparing Environmental Statements or Analysis Reports and specific conditions for activities. The BLM serves a dual role as the agency responsible for receiving, processing and awarding all federal leases as well as managing its lands in the Planning Unit. The Forest Service is responsible for the preparation of EARS and EISs on National Forest lands as well as the approval or disapproval of leases on these lands.

Federal leasing procedures require the NEPA process to be followed in evaluating geothermal exploration, leasing and surface development, and approval of the necessary notices of intent, plans of operation and permits. An EAR or EIS is required for each exploration permit, the drilling of deep test holes, each special use permit for a power plant, transmission lines or pipelines and Federal Power Commission permits to generate electricity.

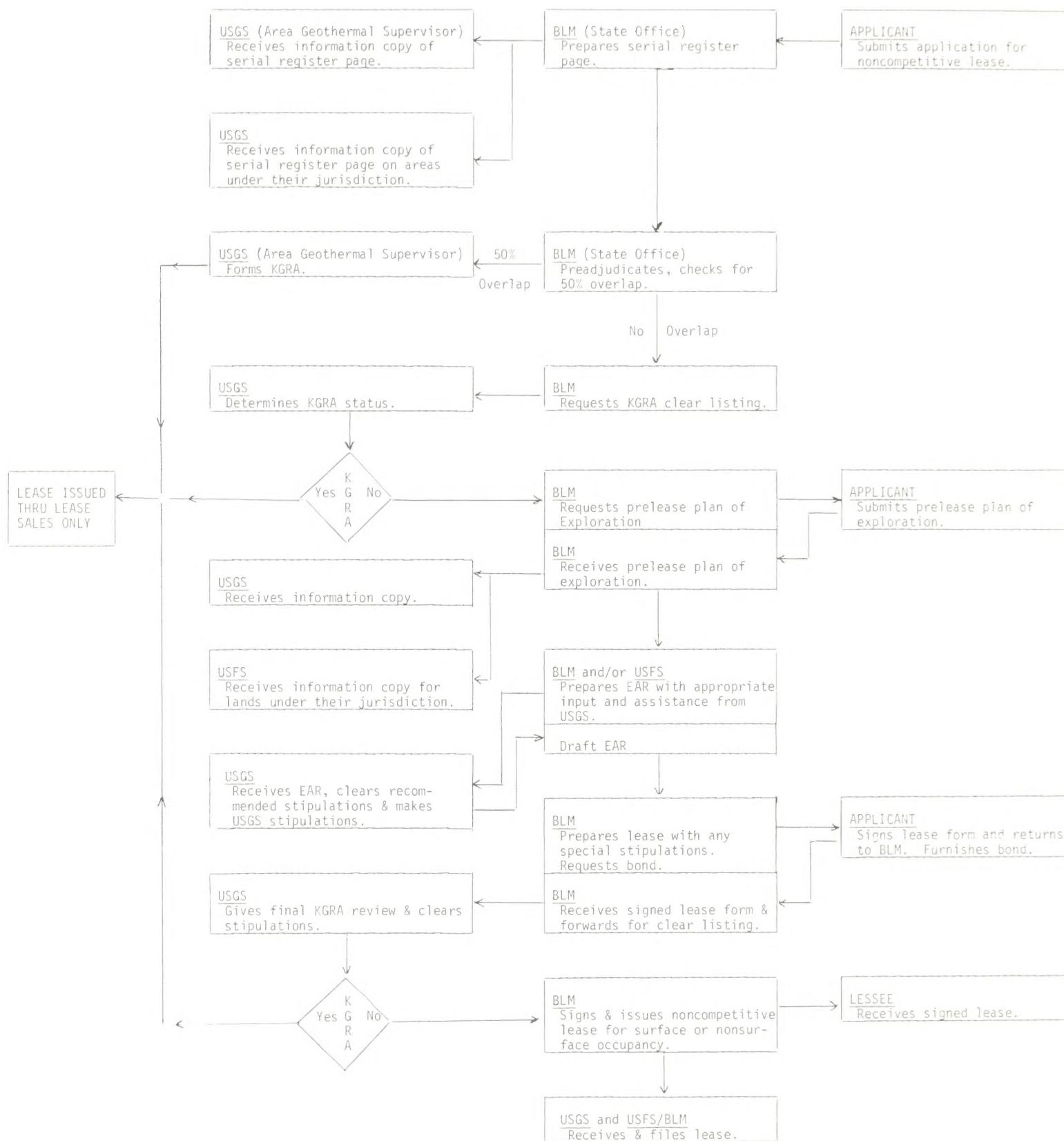
Nonsurface occupancy leases may be issued on federal lands to ensure that the area's consideration as wilderness or the potential for other uses is not precluded and the lessee's interest is protected. These leases carry the stipulation that the lessee will not conduct any geothermal activity on the lands covered by the lease until it is determined through an EAR or EIS that activity would be acceptable. Nonsurface occupancy leasing provides a land holding position which protects the lessee while the land management agency is making an assessment of the land. If it is determined that geothermal activity would not be acceptable, the lease would be terminated.

1/ The state requires that all geothermal power plant sites are located within areas designated as suitable by the State Energy Facility Comprehensive Plans set out general activity and development requirements. In addition, Clackamas County's Mt. Hood Community Plan specifically requires the impact of off-site transmission facilities to be considered in reviewing proposed development. The Department of Geology



# Figure 4

GEOHERMAL LEASING PROCEDURES FOR USFS NATIONAL FOREST AND BLM LANDS



and Mineral Industries and Department of Environmental Quality have specific standards which must also be met.

2/ Rules and regulations covering the exploration for and development of geothermal resources on federal lands are outlined in the Geothermal Steam Act of 1970 (30 USC 1001-1025); in the Federal Register under Title 43, Chapter II (38 FR 35082, December 21, 1973); the Geothermal Resource Operational Orders as released through the United States Geological Survey; U.S. Geothermal Energy Research, Development and Demonstration Act of 1974 (PL 93-410); State of Oregon Administrative Rules -- Compilation Sections 20-005 through 20-170, 1972; U.S. Forest Service Manual Supplement, Title 2800.4, Section 1 through 6, 1974; Environmental Statement for the Geothermal Leasing Program, U.S. Department of the Interior, Fol. 1-4, 1973.



## CLIMATE

Regional climatic patterns evidence the east/west orientation and variation in elevation of the Planning Unit. Areas west of the Cascade Crest have higher humidity, more overcast periods during winter months and fewer extremes than areas east of the crest. Precipitation varies with elevation and occurs primarily during the winter, mainly as snow above the 3500 foot elevation; precipitation ranges from approximately 65 inches at an elevation of 1000 feet to 140-170 inches at 4000-5000 feet (Mt. Hood National Forest, 1976). Marine influences are reflected in the nine month rainy season and because the general wind direction is from the west.

Summers are generally dry with small amounts of precipitation through August, often less than two inches per month. July and August are the warmest months with average daily temperatures in the high fifties. Days are usually clear with cool evenings.

Typically, there is good air dispersion on the upper slopes and a tendency toward inversions in the morning in the lower valley, particularly in the spring and summer.

## SOILS

The high degree of diversity in the parent material and climate in the Planning Unit has led to the development of a great variety of soil types. Soils have developed in materials deposited by glaciation, from volcanic activity, from materials weathered in-place, from basalt, andesites and breccias and from the results of weathering and water erosion. The soils range from shallow soils underlain by hard basalt and andesite to deep loamy glacial soils and areas with thick ash surfaces. Climatic conditions, particularly rainfall and temperature, greatly affect rates of weathering and soil development.

Soils characteristics such as structure, texture and depth influence the availability of groundwater, surface runoff, erosion rates, land stability and productivity. These characteristics determine, to a large extent, the land suitability for recreation, wildlife, timber harvest, agriculture and community development. Limitations and hazards (e.g. suitability for structures, roads, campgrounds and septic tanks, and potential for surface erosion) and hydrologic interpretations (e.g. surface runoff and sediment yield potential) for soil units in the Planning Unit are available from the participating agencies.

The land suitability analysis\* used in developing the Proposed Plan and Alternatives for the Mt. Hood Planning Unit relied on soils information as one of the key environmental determinants. Exhibit J includes a land classification chart used in the suitability analysis which groups soil units according to their suitability for various uses.

More detailed soils information for the Planning Unit is available from the Mt. Hood Forest, BLM, two counties and has been mapped on 4"=1 mile scale aerial photographs for the entire area. Soil surveys were made in the Bull Run/Sandy area by the Forest Service in 1964; the Mt. Hood/Eastside by the Forest Service in 1973; Highway 26 Corridor (Cherryville to Zigzag) by the SCS during 1971-73; and Parkdale/Hood River Corridor by the SCS in 1973.

\*Refer to map inserted in this document and discussion on page 14.



The county sanitation offices also maintain files within the Planning Unit for more specific on-site descriptions of soil conditions, but this coverage is incomplete.

Soils management problems result from logging or vegetation clearing practices, road building and community development. Soil erosion, sedimentation and loss of soil productivity result from poor soil management practices (e.g. tractor yarding on steep slopes). Other problems result from building trails or roads in highly erosive soils and constructing drainfields on soils with high water tables, resulting in groundwater degradation.

## HYDROLOGY

Hydrologic features in the Planning Unit include streams, permanent snow fields, lakes, wetlands and groundwater.

Surface Water. There are portions of two drainage basins, the Sandy River, East Fork Hood River, included in the Mt. Hood Planning Unit. These watersheds exhibit flow characteristics similar to other large watersheds in the Cascade Mountains. In addition to stream-flows originating from the forested zones, the Mt. Hood glaciers contribute substantial melt water during the summer period when rainfall is slight. These features tend to distribute the stream-flow evenly throughout the year in glacier fed tributaries of the East Fork Hood River and the Sandy River.

The Department of Environmental Quality, the State Water Resources Department, the U.S. Geological Survey and the U.S. Forest Service monitor water quality and quantity on a continuing basis. Runoff records have been developed in the U.S. Geological Survey in the Sandy River basin from as far back as 1908. Though the records are spotty for some streams, there are good records for enough stations in the area to make good streamflow analysis. Data is deficient in the Hood River drainage.

The average annual yield of the Sandy watershed is approximately 997,000 acre-feet per year as recorded at the USGS Marmot gage. This has ranged from a low of 560,000 acre-feet to a high of 1,380,000 acre-feet. Monthly flows for the November through May period are very uniform and range from 10-13 percent of the annual flow. A double peak occurs with the highest water generally occurring in December and another lesser peak occurring in the April snowmelt period. June through October flows are decreased. The summer low occurs in August and September with the monthly average about three percent of the annual average.

Hood River's East Fork has an annual yield of about 196,000 acre-feet near the community of Mt. Hood. Streamflow records are limited, but statistical correlation by the Oregon State Water Resources Board (1965) indicates an expected variation in annual yield would be in the magnitude of 130,000 to 170,000 acre-feet. Variation in monthly flows is even less pronounced in the East Fork Hood River system than



in the Sandy. On a monthly basis, December flow is the highest, averaging approximately eleven percent of the annual flow. The minimum flow annually occurs during August and September, but seldom drops below five percent of the annual yield.

Streams on the National Forest have been classified from I through 4, based on the existing or potential use for fisheries and downstream use for domestic supplies or fish hatcheries. Prescriptions for classification are in the Forest Service Manual, 8223. Streams providing water for domestic water supplies or supporting large numbers of fish are Class I streams. Streams supporting moderate though significant numbers of fish are Class II streams. All other permanent streams are Class III streams; all other intermittent streams are Class IV streams.

The State of Oregon classifies streams in a similar manner, except that it uses only two classes of streams rather than the four used by the Forest Service. Class I and II streams equivalent to the State Class I stream designation.

The study area contains a total of 161.9 miles of Class I and II streams according to the USFS. There are 668 miles of Class III and IV streams in the area. All streams in the area which meet Class I or II Forest Service criteria have been classified and inventoried. Stream classifications for the Planning Unit are shown on Map 6.

Except for the unusual 1964 flood which flooded every drainage in the study area, only part of the drainages will flood during a storm event. This is due to variation in physiographic features such as mean elevation for subdrainages, aspect and orientation. These features cause variation in temperature and precipitation which result in different snow accumulation and retention patterns.

The condition of the channels indicates that with few exceptions, the named streams in the study area have a tendency to flood on an annual basis. Channel erosion and deposition causes problems to developments in the floodplains.

There are few lakes in the Planning Unit, most are in areas without road access (i.e. the Zigzag Mountain Wilderness Study Area and Wind Lake basin). Trillium Lake, the largest in the area, is accessible by road and has a campground along its margin. Large wetland areas occur near North Mountain, Zigzag Mountain, Devil's Peak, the Wind Lake basin, Government Camp, Trillium Lake, Mt. Hood River and Elk Meadows.

Domestic watersheds in the area include Lady Creek, Henry Creek, Upper Still Creek, Tillie Jane Creek, Crystal Springs and Parkdale Cold Springs. There are single home, small group or recreation area systems on virtually every major stream in the study area. Approximately 17,900 acres of the Bull Run Reserve are included in the Planning Unit, but this area is not actually in the physical drainage of the watershed for Portland's water supply.

Groundwater. The ridges bordering the Mt. Hood Highway corridor, the upland areas east of Hood River and other similar elevated areas with permeable geologic materials and large amounts of precipitation are areas of groundwater recharge. Large river and stream channels such as the Sandy, Hood and Zigzag Rivers and Still, Lady and Henry Creeks act as surface drains for groundwater discharge. The water table in discharge zones is generally closer to the land surface. Groundwater in the Planning Unit is being tapped by at least 125 wells. Sampling of the wells indicates that the water is generally of good quality and the only prevalent chemical quality problem appears to be the high iron and manganese content.

Much of the low lying area in the Planning Unit is within a groundwater discharge area. Gravelly materials from stream deposits are common in these valley bottoms and are excellent aquifers. Some glacial deposits are also good aquifers.

When septic tank effluent is discharged in these areas, it percolates to the shallow groundwater and migrates with it down gradient to a discharge point (e.g. water wells, springs, marshes and/or streams). Under these conditions, dilution and dispersion may be the principal agents in the attenuation of some effluent constituents. Groundwater quality is discussed in the Water Quality Section which follows.

The groundwater situation within the Planning Unit was studied and described by the Oregon State Engineer's Office in a special report (Lisner, F.G. and H.R. Sweet. Mt. Hood Study - Groundwater. Oregon State Engineer's Office. 1974) which is summarized in Exhibit G.



# mt. hood planning unit

## WATER

USFS Stream Class

I

II

III



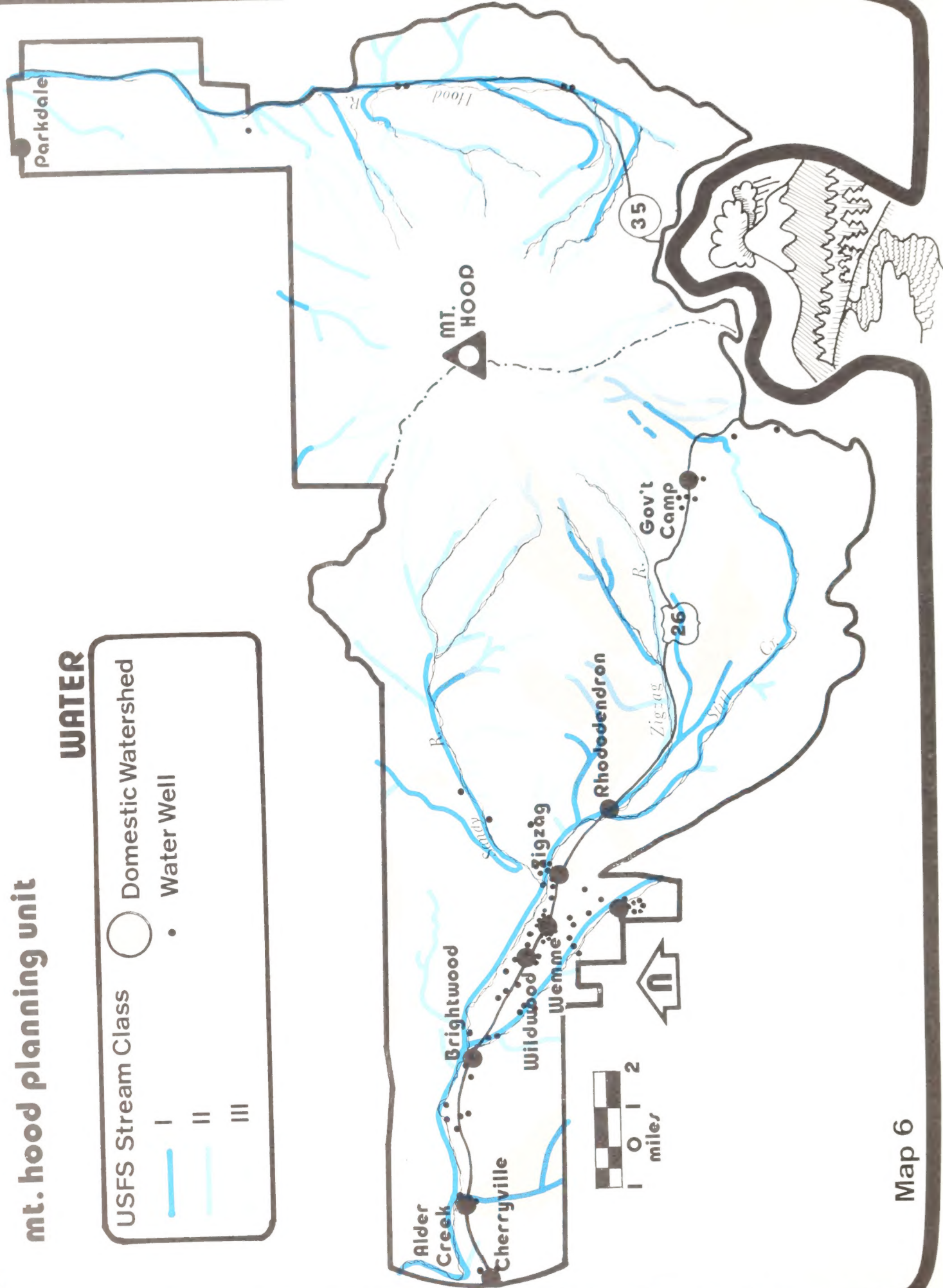
Domestic Watershed

Water Well

.



miles



## WATER QUALITY

Water quality in the streams of the Planning Unit is generally very high above populated areas. The CH2M consulting firm and Clackamas County completed analysis of the surface water supply for the Clackamas County portion of the area. Tables of water quality data prepared for the study are included in the Mt. Hood Groundwater Study paper developed by H.R. Sweet and F.G. Lisner.

Quality of the groundwater is related to the volume and types of waste generated and the locations and methods of disposal. The Clackamas County Health Department tested 74 private water systems between April 1972 and August 1973. It was reported that 14 were declared unsatisfactory due to bacterial pollution. Analysis of 242 samples from public water systems found 196 to be satisfactory. Forty were declared unsatisfactory and six were not tested. The contamination of water well supplies is dependent upon the proximity of waste disposal, direction and rate of movement of the contaminated groundwater and ready access (i.e. lack of seal) to the well.

Water quality standards for the Planning Unit have been established by the State Department of Environmental Quality (DEQ) through the Statewide Water Quality Management Plan adopted in December 1976. The following special standards apply to the Sandy River basin:

1. For low streamflow periods (June 1 to October 31), the monthly average effluent concentrations of five day BOD\* and suspended solids (SS) shall not exceed 10 mg/l. Positive protection shall be provided to prevent bypassing of raw or inadequately treated sewage.
2. For high streamflow periods (November 1 to May 31), a minimum of secondary treatment shall be provided and all facilities shall be operated at maximum efficiency at all times.
3. All effluent is to be disinfected, equivalent to maintaining a one mg/l chlorine residual after a one hour contact time.
4. More stringent waste treatment and control requirements may be imposed where required by special conditions.

Similar special standards were adopted for the Hood River basin except that low streamflow periods were considered to be from May 1 to October 31, high streamflow periods were identified for Hood River as November 1 to April 30. Staff members of DEQ advise that there is likelihood of requiring no discharge for summer low flow periods and BOD and SS concentrations not exceeding 20 mg/l during the rest of the year. These more stringent requirements are being considered as the basis for planning for future treatment facilities with effluent irrigation or leaching as the summer alternative to effluent discharge.

\*See Glossary



The achievement of effluent concentrations of 10 mg/l of BOD and SS can generally be done by the activated sludge sewage treatment process, followed by effluent polishing. Sludge\* is generated by such processes and long range sludge disposal methods will have to be investigated. Adequate operation and maintenance of treatment facilities is essential to meet high quality effluent standards.

Additional discussion of water quality is included in the Community Services section and in Exhibits G and I of the Appendix.

#### AIR QUALITY

Air quality is believed to be relatively high in the Mt. Hood area, but because the Planning Unit has never been actively monitored, its actual quality characteristics are not known. The Planning Unit's proximity to the Portland metropolitan area does affect air quality but the extent of this influence is not known. Other major sources of air pollution in the area are dust, vehicle emissions and prescribed burning for slash disposal. The DEQ enforces standards for point sources of air pollution and has special restrictions applied to air quality in wilderness areas.

Air drainage characteristics of the Planning Unit are described in the Climate section and fuel emission characteristics and projections are addressed in Exhibit G and the Summary of Effects section.

\*See Glossary

## NOISE

Noise levels in the Planning Unit are extremely low with the exception of developed areas along Highway 26, developed recreation areas and the community areas. Activities like gravel operations, road building and logging which generate higher noise levels are generally temporary and distant from noise sensitive areas like residential communities.

DEQ noise regulations protect both developed and undeveloped areas from significant noise level increases. Where existing noise levels are very low, new noise sources (e.g. a plywood mill or cannery) are prohibited from increasing the existing noise level by more than 10 dBA.\* In areas which already have been developed, new sources have to comply with the general noise level standards for their classification.

## VEGETATION

The natural vegetation of the Mt. Hood Planning Unit reflects the diverse character of the region. Representative plant communities can be grouped into the following broad categories: (1) closed canopy forest, (2) naturally open areas that lack a closed forest canopy (i.e. alpine and timberline areas, bare rock, talus slopes, wetlands and floodplains) and (3) recently disturbed areas (e.g. areas affected by wildlife or timber harvest; disturbed within the last 20 years, the approximate length of time needed to establish a closed canopy forest).

Closed Canopy Forest. The closed canopy forest of the Mt. Hood Planning Unit, about 70 percent of the total area, is composed almost totally of coniferous species. Below 2500 feet in elevation, the closed canopy forest generally consists of a Douglas-fir/western hemlock (Pseudotsuga menziesii/Tsuga heterophylla) overstory. In elevations above 3500 feet, Pacific silver fir (Abies amabilis) and noble fir (Abies procera) occupy an ever greater proportion of the overstory with mountain hemlock (Tsuga mertensiana) and subalpine fir (Abies lasiocarpa) at the higher elevations. Forest cover becomes discontinuous above approximately 5000 feet. Timberline on Mt. Hood generally averages 6500 feet in elevation. Upper elevations forest types on the eastside of Mt. Hood are similar to those on the westside. However, in the bottom of the East Fork of the Hood River drainage, Douglas-fir and grand fir begin to dominate the overstory.

Common understory shrub species in closed canopy forests include huckleberry (Vaccinium sp.), vinemaple (Acer circinatum), Oregon grape (Berberis nervosa), salal (Gaultheria shallon), rhododendron (Rhododendron macrophyllum) and devil's club (Oplopanax horridum). On drier slopes, chinkapin (Castinopsis chrysophylla), boxwood (Pachystima myrsinites) and prince's pine (Chimaphila umbellata) are also found. Dominant herbaceous species include sword fern (Polystichum munitum), oxalis (Oxalis oregana), bunchberry dogwood (Cornus canadensis), beargrass (Xerophyllum tenax) and twin flower (Linnea borealis).

\*See Glossary



Prior to active fire protection by the Forest Service, indications are that major wildfires occurred in the area at least once every 15 years (USFS and PWB, 1976). The latest period of widespread conflagration appears to have been around the turn of the century. Thus, much of the standing overstory is 70-100 year old Douglas-fir interspersed with islands of old growth (200 years or more in age) that escaped burning.

In a few areas, dense stands of red alder (Alnus rubra) with vine-maple, huckleberry and ferns have been established in a closed canopy after wildfire or timber harvest and have not yet been overtaken by coniferous species. Most areas of this type are found in the Highway 26 corridor west of Laurel Hill. One of the largest and most prominent examples, the Zigzag Burn, is seen looking south from Highway 26 in the Laurel Hill area.

Undisturbed Open Areas. These are sites that do not support closed canopy coniferous forest for ecological reasons and account for about 25 percent of the Planning Unit. They include alpine and timberline areas, talus slopes, wetlands and floodplains.

Alpine and timberline areas are probably some of the most diverse and interesting areas of the Mt. Hood Planning Unit in terms of vegetation. The treeline ranges between about 5500-6500 feet on Mt. Hood; treeline is the highest on the south side of the mountain.

Predominant undisturbed unforested vegetation types are, in order of increasing elevation:

Treeline, Subalpine Parklands. Tree species encountered are mountain hemlock, whitebark pine (Pinus albicaulis) and subalpine fir (Abies lasiocarpa). Often, trees are shaped into distorted forms by the wind. Other species include huckleberry, partridge foot (Luetkea pectinata), Newberry knotweed (Polygonum newberryi) and many of the species found in subalpine meadows.

Subalpine Meadows and Forblands. There are many different types of herbaceous vegetation in alpine areas; the species composing these areas vary with the moisture content of the soil, soil depth and climatic conditions. The slopes of Mt. Hood contain large alpine forblands, lush with blooming wildflowers in the late summer. A few of the most commonly found species are beargrass, Indian paintbrush (Castilleja), pasqueflower (Anemone occidentalis), lupine (Lupinus), phlox (Phlox) and heather (Phyllodoce and Cassiope).

Alpine Bryophyte Communities. These are areas where extreme environmental conditions force even hardy vascular plants to give way to mosses and lichens. These communities occur at the highest vegetated areas in the Planning Unit and grade into the nonvegetated glacial and volcanic material that forms the summit of Mt. Hood.

Another broad category of nonforested areas is characterized by thin soil or bare rock and resulting sparse vegetation. This includes rock outcroppings and talus slopes. These areas support such species as vinemapple (Acer circinatum), mock orange (Philadelphus lewisii), oceanspray (Holodiscus discolor) and parsley fern (Cryptogramm) in addition to mosses and lichens.

Some wetlands do not support forest vegetation where inadequate drainage results in a soil layer saturated with water. Most meadows and marshes are predominately vegetated by various species of grasses, rushes and/or sedges with a wide variety of forbaceous species including skunk cabbage (Lysichitum americanum), coltsfoot (Petasites frigidus) and cow parsnip (Herculeum lanatum). Often, alder (Alnus), spirea and willow (Salix) will be found around the periphery or in these sites. In areas of heavy snow accumulation, sitka alder (Alnus sinuta) may also be found.

The fourth category of nonforested land in the Planning Unit consists of the floodplains of the Sandy, Zigzag and Salmon Rivers and the East Fork of the Hood River. Flooding occurs often enough in these areas to prevent a typical coniferous forest from developing. Often, little or no vegetation is found. Where vegetation has had a chance to develop, deciduous tree species such as black cottonwood (Populus tri-chocarpa), bigleaf maple (Acer macrophyllum) and red alder occur. Shrub species encountered include salmonberry (Rubus spectabilis) and vinemapple.

Recently Disturbed Areas. These are areas where a man-made (e.g. timber harvest) or natural (wildfire) phenomenon has caused existing forest cover to be removed and temporarily replaced with what might be called brush or forb patches. These form an intermediate step in the process of reforestation of an area. These areas support the seedlings and saplings of coniferous species (often planted by man as in the case of clearcuts\*) that will eventually form the forest canopy, in addition to a wide variety of shrubs, herbaceous plants and deciduous trees. Some species commonly found are red alder, vinemapple, huckleberries, blackberry (Rubus), brackenfern (Pteridium aquilinum), rhododendron, beargrass and fireweed (Epilobium angustifolium). Less than five percent of the Planning Unit consists of area recently disturbed, virtually all of which is due to timber harvest; less than one percent of the area has been burned in the last 20 years.

In 1972, approximately 300 sites were examined on National Forest land within the Planning Unit to determine plant communities. The data was then analyzed to determine areas of similar vegetation type, the results are noted in Exhibit K.

Endangered and Threatened Species. In 1973, the Endangered Species Act was passed by Congress to provide statutory protection to those plant species that were either limited in number or geographic extent; or are in some way threatened with extinction. On June 16,

\*See Glossary



1976 a list of endangered and threatened species recognized under the Act appeared in the Federal Register. Pityopus californicus and Polystichum kruckebergii are two listed species that are known to occur in the Mt. Hood Planning Unit. Many plants on the Mt. Hood however, are also unofficially considered by botanists to be rare, unique or in some way, endangered. Exhibit K lists plant species observed in the Planning Unit which have been identified by the Oregon Rare and Endangered Plant Species Task Force and are likely to be considered for recognition as rare, endangered or threatened species by the State of Oregon.

Research Natural Areas. There are no existing Research Natural Areas (RNA) in the Planning Unit. The Forest Service has an RNA in the Bull Run Planning Unit (adjacent to the Mt. Hood area) which contains upper elevation old growth (i.e. noble fir, Pacific silver fir and western hemlock). Higher elevation lands in the Planning Unit may include some areas suitable for identified Research Natural Area needs; this suitability will be reviewed in the future by Forest Service in part, through the Wilderness Study process. Review for RNA designation will be done in coordination with the Pacific Northwest Natural Area Committee.

## WILDLIFE

The most significant biological feature of the Mt. Hood Planning Unit is the great species diversity among the plant and animal communities. From a management standpoint, this diversity is extremely important because it reflects the health of the environment (i.e. biologically diverse environments tend to be more stable, less prone to dramatic fluctuations in population). The area's geography has a profound affect on habitat diversity and thus, wildlife diversity. Mt. Hood and its associated range of ridges are marked by extreme variation in relief and elevation, and separate the Planning Unit into two dissimilar climatic regions. Habitats range from wilderness areas with severe alpine and subalpine conditions to the moderate climate of the orchard land and developed communities of the Hood River Valley; habitat types differ in their successional stage\* from old growth timber stands (200 years in age or greater) to early stages of forest succession. A complete listing of the wildlife found in the Planning Unit is provided in Exhibit L.

Species variety and diversity is dependent upon the vegetative composition and the interspersions of plant communities in relation to the home range\* of the animal. The interfaces between plant communities, ecotones, are favored by wildlife because most animals rely on a variety of habitat type; the mountain quail (Oreortyx pictus) for example, relies on three to five different habitats during its breeding season. Another important factor to wildlife diversity is vertical vegetative layering within the forest canopy, particularly in the case of birds.

Existing stands of old growth include an abundance of snags\* which in combination with interspersions of other plant communities form an important habitat for approximately 57 species of animals (Horn, 1975). Many of

\*See Glossary



the animals dependent on snags are cavity users; these animals serve not only as a valuable scientific and aesthetic resource, but also act as a biological control over forest insect and rodent populations. Cavity users are identified on the species list in Exhibit L. The Mt. Hood Forest has a policy to manage some snags and other dead and dying trees for wildlife habitat. A copy of this policy and a streamside management policy are included in Exhibit L.

Man's influence in the Planning Unit has had a profound effect on wildlife. As a rule, species dependent upon more remote conditions (e.g. alpine and timberline habitat types) have been less affected than those which rely on lower elevation areas where man's influence has been most significant.

Available winter range for deer and elk is diminishing in the Planning Unit due to man's influence. Because the winter range is mainly confined to areas at 2000 feet in elevation and below, conflicts occur due to high numbers of free ranging dogs, residential and commercial development, harassment from winter recreational use and the low nutritional value of the vegetation. Therefore, even though 16% of the Planning Unit is at or below 2000 feet, only about 4% provides suitable winter range most years. The poor quality of the winter range is a critical wildlife consideration because deer and elk are least tolerant of stress during this period.

Alpine and timberline habitats are some of the most sensitive in the Planning Unit due to the more extreme environmental conditions (i.e. wide extremes in temperature, short growing seasons, shallow soils and sparse vegetation). While the existing wilderness and wilderness areas protect some of this habitat from development, these areas are very vulnerable to recreational trampling. Expanding facilities at Timberline Lodge and Mt. Hood Meadows also impose greater impacts to the alpine ecosystem.

Timber harvest and fire have created conditions favored by wildlife species which prefer early successional stages such as deermice, elk, deer, voles, sparrows and nighthawks.

Hunting and wildlife viewing are significant activities in the Planning Unit. Much of the hunting occurs on the eastside of the mountain because it is more open and has a better climate. Wildlife viewing is an important activity, particularly due to the high level of recreational use that occurs in the Mt. Hood Area.

Specially Classified Species. At the present time, there are no known species living in the Planning Unit which are classified as threatened or endangered by the Threatened and Endangered Species Act of 1972. However, there are five species which are specially classified which have been observed and are listed in Exhibit L. They include the peregrin falcon, an endangered species which occasionally visits the area. Other species specially classified by the federal government or the State of Oregon are the northern bald eagle, northern spotted owl, wolverine and western spotted frog.

\*See Glossary



## FISHERIES

Stream features such as gradient, bedload material, temperature and accessibility determine the fishery resource of the Planning Unit to a large extent.

The area includes 25 miles along the main Sandy River and 100 miles of its principal tributaries from their source on the western face of Mt. Hood. Many streams emanate from sparsely vegetated glacial areas on the mountain. However, most are generally well shaded after leaving their source. Approximately 24 miles of East Fork Hood River and 50 miles of its tributaries are also included in the Unit. These emanate principally from the eastern slopes of Mt. Hood, often from glacial areas.

Stream courses in the Sandy basin are generally narrow and steep in the upper part of the watershed, and wider and more moderate in gradient in the lower parts of the Unit. Steep gradients and persistent heavy bedloads of glacial silt and sand, coupled with dynamic movement of coarse, unconsolidated sand and cobble materials, are characteristic in much of the East Fork Hood River and several major tributaries of the Sandy including the main stem, Zigzag and Little Zigzag Rivers. The Muddy Fork of the Sandy carries extremely high quantities of glacial silt and sediment into downstream areas.

Characteristic heavy bedload movement, siltation from summertime glacial melt and extremely cold water temperatures, limit the natural productivity of these streams for resident or anadromous salmonids.\* These conditions also have a predominating influence on the Sandy and Hood River systems downstream from the Planning Unit. The influence of cold water from source areas is considered an asset, but may be outweighed by the negative effects of siltation, sand deposition and periodic relocation of bedload materials found in streams with a glacial source.

Nonglacial streams in the Sandy basin provide good salmonid production and have potential for increased use by salmon and steelhead. Pertinent information concerning fish resources in the Unit is found in several reports (Collins, 1974; Pirtle, 1953; Thompson, Hutchison, Fortune and Phillips, 1966; Hutchison and Aney, 1964; and Hutchison and Corthell, 1963).

Streams in the Planning Unit produce steelhead, anadromous cutthroat trout and coho salmon where accessible to migrating adults. A small run of spring chinook salmon also use the lower Salmon River. Average numbers passing Marmot Dam at River Mile 30.1 downstream from the Planning Unit boundary for 1957-69 were 3300 winter-run steelhead, 900 coho salmon and 120 spring chinook. However, these counts have considerable variation from year to year. An estimated 250 winter steelhead and 75 adult coho use the East Fork Hood River system including tributary areas.

Wild populations of cutthroat and rainbow trout exist throughout streams in the area. Cutthroat are more widespread and common than rainbow trout in nearly all tributary areas. German brown, brook and Dolly Varden trout are

\*See Glossary



occasionally encountered. Cottids, white fish, Pacific threetooth lamprey, western brook lamprey and, in some areas, dace are common nongame fish found in the upper Sandy and East Fork Hood basins. Lakes contain cutthroat, rainbow and brook trout.

Anadromous fish produced in the Planning Unit contribute to extensive fisheries in downstream areas of both the Sandy and Hood basins, as well as in the Columbia River and Pacific Ocean. Brightwood, at about River Mile 38, is the present upper limit for steelhead and salmon angling in the Sandy basin.

Several thousands of angler days are expended each year by the public in pursuit of these fish, but most of this is out of the Planning Unit. Salmon also contribute to commercial fisheries in the ocean and Columbia River. Fish harvested through realizing full potentials of salmon and steelhead production areas in the Planning Unit and the value of those harvested from anticipated stocking programs above Marmot Dam would, on the average, amount to an estimated \$1.8 million annually at 1975 prices and values (Tuttle, Richards and Wahle, 1975).

The Oregon Department of Fish and Wildlife annually stocks approximately 195,000 juvenile winter-run steelhead in the Sandy River downstream of Brightwood; about 65,000 of these are stocked between Marmot Dam and Brightwood. Also, about one million coho smolts are planted in the Sandy each year; 50,000 spring chinook smolts and 75,000 summer steelhead smolts are stocked in the Sandy basin within the Planning Unit boundaries. The latter two species are being used as part of the Department's program to more fully utilize available production areas in tributaries and to provide high quality fisheries in late spring and summer in the Sandy River. Stocking of approximately 300,000 spring chinook smolts is expected by 1977. Coho adults surplus to hatchery needs have also been planted in Sandy basin streams.

Sites for construction of an anadromous fish rearing pond have been identified along the lower Salmon River by the Department of Fish and Wildlife. Development of this type of facility has considerable merit in meeting long term fish resource demands and is being explored by the Department.

Steelhead are occasionally taken in East Fork Hood River incidental to an extensive trout fishery maintained by the Oregon Department of Fish and Wildlife through stocking catchable fish. The stream area adjacent to State Highway 35 is presently stocked with approximately 10-12,000 catchable cutthroat trout each year. Nearly 20,000 yearling rainbow are annually stocked in accessible streams of the Sandy basin above Brightwood. Some 28-30,000 angler days are spent by the public in fisheries supported by the catchable trout stocking program in the Planning Unit.

Remote stream areas are managed to provide angling on wild, naturally maintained stocks of trout, principally cutthroat. While the intensity of use is less than in areas heavily stocked with catchable sized fish, these areas are maintaining very significant angler opportunities. The popularity of fishing for wild fish is increasing.



Several lakes in the Unit are periodically stocked with yearling and/or fingerling sized rainbow, cutthroat and brook trout. Nearly 15,000 yearlings and 9000 fingerlings were stocked in lakes in 1975. Angling for trout in high lakes is popular.

Several miles of both the main Sandy River and its tributaries evidence man's activities to control the river or to prevent flood damage to structures. Over 20 miles of the main Sandy River above Marmot Dam, several areas in the lower Salmon River and several miles of other tributaries have been channelized, straightened, realigned or otherwise modified through placement of revetments and similar structures for flood damage protection. Several small tributaries are blocked to fish passage by manmade barriers. Much of main East Fork Hood River was realigned and straightened with construction of Highway 35. These activities have all had a long term negative influence on the natural capability of the affected stream areas to produce fish.

Major appropriations of water for irrigation from East Fork Hood River has a serious impact on fish habitat in stream reaches below. For several decades, anadromous fish runs in the upper Hood River basin were curtailed by fish passage and protection problems at dams at Powerdale and Dee. These problems have been reasonably well resolved in the last decade.

Anadromous fish use of the upper Sandy basin has been influenced by Marmot Dam at River Mile 30.1. Long standing fish passage problems at the project as well as several problems caused by flow depletion in the river for several miles below it (Hutchison and Claire, 1970) are being resolved between the Department of Fish and Wildlife and Portland General Electric Company, owners of the project. Correction of these problems is extremely important to fully realizing anadromous fish potentials in the Sandy basin. Under Federal Power Commission relicensing procedures, PGE will be required to solve fish passage problems.

Fish production in the area does not appear to be influenced by logging or other developments to any appreciable extent other than for problems mentioned above, although there could be impacts from domestic sewerage or treatment plant effluent entering surface waters in the Sandy or Hood basins that are as yet undetected. The impact of logging adjacent to some tributary streams is being monitored by the Forest Service. Protection of water quality from siltation, increased temperature and from sources of pollution associated with urban developments will be important watershed considerations. Key fishery streams have been identified (Collins, 1974) and will need high levels of protection from man's encroachment to maximize public benefit of fish resource management activities.



## LAND USE AND SOCIAL/ECONOMIC CHARACTERISTICS

The primary land use and economic activities in the Planning Unit: agriculture, timber management and recreation are derived from the area's natural resources. Other uses such as housing, commercial development and transportation are directly related to these three primary uses.

Land ownership patterns reflect the traditional patterns of use in the Mt. Hood area. The lower elevation areas with the best agricultural, forest and developable lands are largely in private, county and BLM ownership. Most small private ownerships and developed lands are concentrated along Highway 26. Planning direction for the private, county and state lands in the Planning Unit has been established by recently adopted county comprehensive plans.



National Forest Land Management. The Forest and Range Land Planning Act (RPA) and the recently adopted National Forest Management Act provide basic direction for land management planning on the National Forests.

The target allocation for General Forest classification in the Area 6 (Mt. Hood, Willamette, Gifford Pinchot and Siuslaw National Forests) is 2,913,326 acres. The Mt. Hood National Forest presently has 397,949 acres in this classification and the Planning Unit has 12,010 acres under this classification.

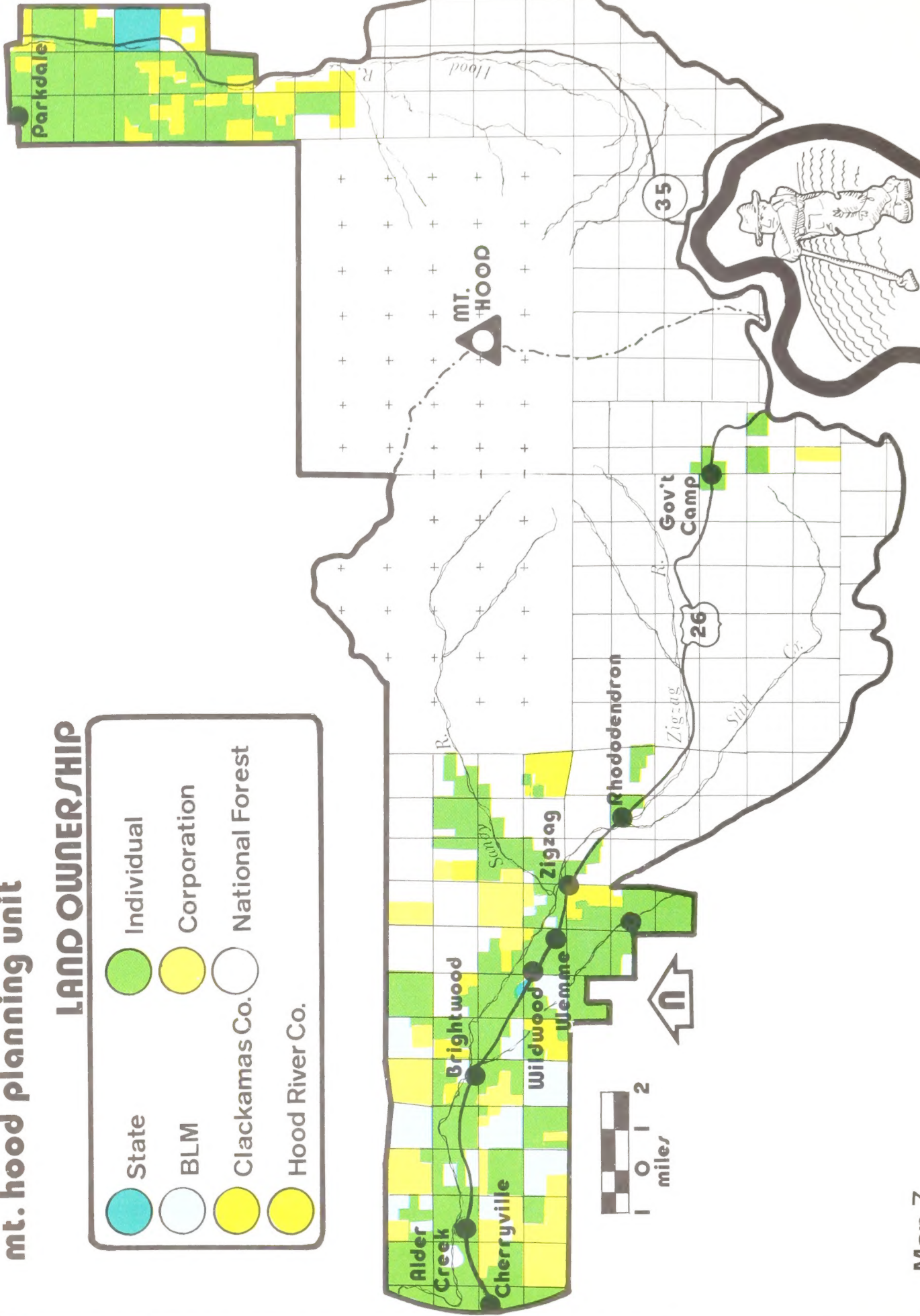
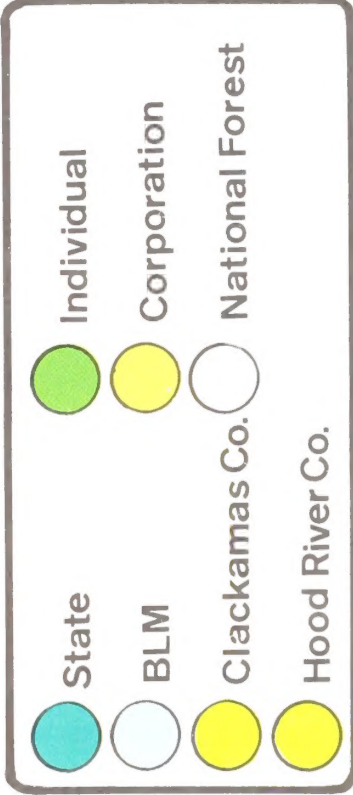
The Area 6 target for Road Recreation lands in the area is 655,496 acres, the Mt. Hood Forest allocation for similarly classified land is 44,177 acres. The unit presently has 44,500 acres in this category.

The Area 6 target for Unroaded Recreation and Wilderness is 535,211 acres. The Mt. Hood Forest allocation for these categories is 194,054 acres. The Planning Unit presently has 63,490 acres in this category.



# mt. hood planning unit

## LAND OWNERSHIP



LAND USE

## AGRICULTURE

Agriculture is an important segment of the Planning Unit's economy. With the exception of one 800 acre farming unit on the westside, the majority of the farming takes place in the upper Hood River Valley. About 2600 acres of orchards and 600 acres of pasture lands are found in the Hood River Valley portion of the Planning Unit. Most of the land suitable for agricultural production in the valley is now used for that purpose.

The farmland in Clackamas County is now being used for livestock grazing, pasture and tree farming.

Production figures specific to the Hood River County portion in the Planning Unit are not available, but since about 14.9 percent of the county's orchard land is located within the area, an estimation can be extrapolated.

	Hood River County	Mt. Hood Planning Unit (est)
Apples	\$6,409,670	\$955,000
Winter pears	6,190,300	922,000
Bartlett pears	5,452,435	812,000
Cherries	1,328,340	
Other tree crops	100,000	14,000
Total Crops	\$19,480,745	\$2,703,000
Livestock & products	1,418,000	10,000
TOTAL	\$20,898,745	\$2,713,000

Source: Oregon State Extension Service, 1974 figures.

Several estimates of potential pasture yield may be made depending on intensive or extensive management practices. The land suitability analysis showed approximately 450 acres of potential agriculture land in Clackamas County and was used in the following calculations for yield comparison purposes.

	Potential Pasture Yields						\$ Value
	Price/Ton*		Tons/Acre*		Acreage		
Irrigated							
Eastside	\$65	x	4.0	x	400	=	\$104,000
Westside	42	x	5.0	x	450	=	94,500
Nonirrigated							
Eastside	65	x	2.0	x	400	=	52,000
Westside	42	x	2.5	x	450	=	47,250

\*Estimates obtained from County Extension Agent and local ranchers.



The majority of the fruit produced in the Hood River Valley is for the fresh fruit market. Bartlett pears are the major contributor to the canning segment of the agri-business. Most of the fresh fruit is packed at Parkdale and Odel; two-thirds of the canning is processed at Hood River with the balance of the processing done in Vancouver and Sunnyside, Washington. From these plants, the fruit is shipped throughout the country and a sizeable share exported to other countries.

Agricultural land is quite attractive to the potential residential home buyers. The level terrain and rural atmosphere contribute to this attraction. As a result, there is a significant demand for conversion of agricultural land to building sites. This factor could seriously affect the viability of the agriculture industry. To avoid this occurring, the counties have specifically designated these lands for agricultural use in their County Comprehensive Plans.

Irrigation is a vital part of farm management, particularly orcharding. Virtually all of the orchards and most of the pastures are presently irrigated. When an orchard is not irrigated, productivity dramatically decreases and any reduction in production may jeopardize its continuation in agricultural use.

Orchard management, particularly spray drift, noise and dust control, can cause substantial problems when close to residences. It is virtually impossible to completely control these problems within the confines of the orchard. Therefore, numerous nearby residences may cause a change of management techniques.

A report of commercial production from the Hood River Valley is given below for the season 1974-75 as compared with the crops of five previous years and total tonnage for the past ten years.

PRODUCT	# Bxs 1969-70	% %	# Bxs 1970-71	% %	# Bxs 1971-72	% %	# Bxs 1972-73	% %	# Bxs 1973-74	% %	# Bxs 1974-75	% %
Apples												
Newtowns	801019	43.2	523967	41.4	573567	38.4	496058	41.0	436332	28.5	391655	30.3
Golden delicious	187647	10.1	177555	14.0	169343	11.3	170004	14.0	103262	6.8	131064	10.1
Red delicious	863365	46.5	559294	44.1	747813	50.0	542452	44.7	987390	64.5	766135	59.3
Miscellaneous	2939	.2	6819	.5	7751	.3	2889	.3	2987	.2	2628	.3
TOTAL	1854970	100.0	1267635	100.0	1498474	100.0	1211403	100.0	1529971	100.0	1291482	100.0
Pears												
Bartletts	92923	4.0	33960	2.9	54307	2.6	210218	12.5	116037	5.3	85718	4.0
Bosc	132139	5.6	58958	5.0	122201	5.8	128338	7.6	98428	4.5	144424	6.6
Anjous	2090283	89.3	1086674	91.2	1907480	90.4	1324166	78.5	1954191	89.2	1923864	88.5
Miscellaneous	25287	1.1	11655	.9	25185	1.2	23965	1.4	23193	1.0	20738	.9
TOTAL	2340632	100.0	1191247	100.00	2109173	100.0	1686687	100.0	2191849	100.0	2174744	100.0
Cherries (FR)	152804		139174	pk bx	197944	pk bx	184404	pk bx	180326	pk bx	48675	pk bx
Bartletts (CND)	33371	tons	22515	tons	42631	tons	29227	tons	30416	tons	35727	tons
Cherries (CND)	1243	tons	751	tons	628	tons	644	tons	554	tons	973	tons
Apples (CND)	15780	tons	12120	tons	10711	tons	6766	tons	24013	tons	25449	tons

## COMPARISON PRODUCTION - BXS

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Apples	1021617	1376437	1700769	1572993	1148619	1854970	1267635	1498474	1211403	1529971	1291482
Pears	822275	1500289	1609224	1469945	1022670	2340632	1191247	2109173	1686687	2191849	2174744

Source: Hood River Grower-Shipper Assn (1974 figures).



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PRODUCT	# Bxs		%		# Bxs		%		# Bxs		%		# Bxs		%		# Bxs		%	
	1969-70		1970-71		1971-72		1972-73		1973-74		1974-75		1975-76		1976-77		1977-78		1978-79	
Apples																				
Newtowns	801019	43.2	523967	41.4	573567	38.4	496058	41.0	436332	28.5	391655	30.3								
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Source: Hood River Grower-Shipper Assn (1974 figures).

Figure 5



## TIMBER MANAGEMENT

Most of the Mt. Hood Planning Unit is forested. About 116,600 of the 158,000 acres contain stands of timber which sustain timber production.

The major forest types are: (1) Douglas-fir with western hemlock, western red cedar, bigleaf maple and red alder in the lower western portion of the Planning Unit; (2) Douglas-fir, grand fir, silver fir extending upslope in the western portion and some of the eastern slopes; (3) noble fir and silver fir with lodgepole pine as an early stage species in the higher elevations, particularly north slopes; (4) mountain hemlock, subalpine fir and limited white bark pine in the upper slopes approaching timberline; and (5) eastern transition type containing Douglas-fir, western larch, ponderosa pine and grand fir. Further descriptions of the plant communities are discussed in the Vegetation section and Exhibit K.

National Forest. The site productivity on National Forest lands available for harvesting is about average. The present assignment for annual allowable harvest within the Planning Unit is about 23,900 MBF (Scribner Decimal C rule). This Planning Unit provides about six percent of the Mt. Hood National Forest's annual harvest.

At present, the principal harvest methods used are clearcutting of mature and overmature timber, reforestation by planting, thinning young overstocked stands of trees, salvage of dead and dying timber, shelterwood and the use of group selection\* harvest system in the high elevation and sensitive landscape areas.

Bureau of Land Management. The lands administered by the Bureau are lower in elevation and generally are more productive than the National Forest lands. Douglas-fir, western hemlock, western red cedar, bigleaf maple and red alder are the primary species present. Silvicultural systems\* and management objectives on Bureau land and National Forests are very similar.

State of Oregon Land. The State of Oregon lands are primarily within Hood River County in the eastern transition forest type. The productive capacity of these lands is slightly lower than National Forest average. There are about 600 acres of state land dedicated to commercial production. The economic returns for these properties is shown on the alternative evaluations.

Hood River and Clackamas Counties. Hood River County manages about 2000 acres of commercial forest land. The forests are usually east-side transition forests and have lower yields than the National Forest average.

Clackamas County owns about 610 acres of commercial forest lands.\* These are Douglas-fir forests with yields higher than the National Forest average.

\*See Glossary

**Private Lands.** There are approximately 14,230 acres of private land in Clackamas County now available for commercial forest production. Most of these are higher site class Douglas-fir forests.

Private lands in Hood River County contain 3200 acres of available commercial forest land. These are Eastern Oregon transition forests.

The demand for timber products is stated in Figure 6. The projections presented are not specifically applicable to the Mt. Hood Planning Unit and therefore, should be used only as an indication of trends.

Figure 8 portrays the cumulative effect of unit planning on timber harvesting in unroaded areas.

Figure 6

Summary of roundwood consumption by species group and major product, 1952 and 1970 with projections of demand (medium level) under alternative price assumptions to 2000. 1/

Billion Cubic Feet, Roundwood Equivalent												
Species group and product	1952	1962	1970	Projections								
				1970 relative prices			Rising relative prices 2/			Relative prices above 1970 averages 3/		
				1980	1990	2000	1980	1990	2000	1980	1990	2000
SOFTWOODS												
Saw logs . . . . .	5.0	4.8	5.0	6.1	6.7	7.0	5.3	5.3	5.0	5.0	5.6	5.9
Veneer logs . . . . .	.2	.6	.9	1.4	1.7	1.9	1.3	1.4	1.5	1.2	1.4	1.5
Pulpwood 4/ . . . . .	2.4	2.6	3.4	4.2	5.3	6.5	4.2	5.4	6.7	4.2	5.4	6.6
Miscellaneous products 5/ . . . . .	.3	.3	.2	.3	.3	.3	.3	.2	.2	.2	.2	.2
Fuelwood . . . . .	.5	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
TOTAL 6/ . . . . .												
	8.4	8.5	9.7	12.1	14.1	15.8	11.2	12.4	13.5	10.7	12.7	14.3

1/ Based on the medium projections of growth in population and economic activity shown in the introductory section of this chapter.

2/ Relative prices rising from 1970 trend levels as follows: lumber -1.5 percent per year; plywood, miscellaneous products, and fuelwood - 1.0 percent per year; paper and board -0.5 percent per year.

3/ Relative prices of lumber and plywood - 30 percent, miscellaneous products and fuelwood - 15 percent, and paper and board - 10 percent, above the 1970 averages.

4/ Includes both pulpwood and the pulpwood equivalent of the net imports of woodpulp, paper and board.

5/ Includes cooperage, logs, poles, piling, fence posts, hewn ties, round mine timbers, box bolts, excelsior bolts, chemical wood, shingle bolts, and other miscellaneous items.

6/ Includes imported logs not shown by major product use.

Note: Data may not add to totals because of rounding.

Sources: 1952, 1962, and 1970 - Based on data published by the U.S. Departments of Commerce and Agriculture

Projections: U.S. Department of Agriculture, Forest Service.

1/ The Outlook for Timber in the United States. USDA. October 1973. Forest Resource Report #20.



Figure 7

## CUMULATIVE EFFECT OF UNIT PLANNING ON TIMBER HARVEST IN UNROADED AREAS (Dec 1975)

AREA	NF Gross Acres	Prior CFL for Plog Unit	1A	Adjusted CFL Base	3A	Unroaded Areas	Unroaded CFL	No Decision To Date			Decisions Rendered To Date						
								Unroaded CFL Acres	Lo MMBF	Hi MMBF	+ CFL	10/	Lo MMBF	Hi MMBF	- CFL	10/	
Badger-Jordan	51010	43884		43884		Badger	20100	20100	4/	7	11						
Bull Run	72625	63775		63775		Lake Big Bend	7130	7130									
Clackamas	350950	291314	2/	296426		Bull/Woods	24260	16070	4/	6	9					560	
							1650	19132	4/	7	10					6778	7/ 2
Eagle Creek	61984	53360		25560		Eagle Gorge	38344									43324	8/ (14)
							4980										(24)
East Hood River	16219	15500		15500													
Eightmile	28665	24984	2/	25407													
Huckleberry	28451	28000		28000		Eagle-Hcklbrry	19820										
							4950										
Larch Mtn-Bull Run	29713	25010		25010		Gorge										2816	1 2
Lava	57404	39897	2/	40573													
Mt. Hood	120200	90200		64404		ZZ Mtn Slmm Rvr Mt. Hood	15270	7326	4/	2	4					25050	9 14
							9780										
Roaring River	32731	23991		23991		Rrng Rvr	23370									15683	5 8
Salmon River	48271	33582		33582		Slmm Rvr	27034									10723	4 6
The Dalles	18511	12035		12035													
White River	142616	124308	2/	126413		Twn Lakes	4830										
								4830	4/	2	3						
Forest Total	1059350	869840		824204			218344	67458	4/							61610	21 34
																43324	(14) (24)
																104934	35 58

ESTIMATED FOREST TIMBER OUTPUT: Adjusted base, Low 285 MMBF, High 450 MMBF; Potential loss in remaining unroaded areas, Low 23 MMBF, High 36 MMBF.

- Commercial forest land acres prior to unit plan decision but including adjustments from recent timber inventory. Includes roaded and unroaded area in Planning Unit.
- Prior CFL acres determined by proportioning difference between total CFL (869840) and calculated acres in studies.
- Adjustments made to recognize unit plan decisions and the designated wilderness study areas. The acreage difference between the actual CFL base (824204) and the studies where acreages have been determined by field inventories was proportioned to the remaining four units (see units where footnote 2 is indicated).
- Unroaded CFL where no decision has been made.
- 9770 acres unroaded area committed to commercial harvest through unit plan decisions. Cheney Creek Area (10050 acres) to remain in CFL base as marginal and commercial forest but without plans for harvest for ten years.
- Unroaded area committed to commercial harvest through unit plan decisions.
- Recommended special interest scenic area Bull of the Woods which has been removed from CFL base.
- Eagle Creek unroaded area which was not in the old or new timber CFL base. Parentheses under -CFL, Lo-Hi indicate potential.
- Remains in CFL but without plans for harvest. Will be reviewed in 1981.
- + programable CFL (standard, special and marginal); -CFL not programable (unregulated, deferred and reserved).



## RECREATION

The majority of the recreational use in the Mt. Hood Planning Unit is oriented to day use. About 30 percent of the recreational visits to the area involve overnight stays and the percentage of visitors from outside Oregon is about 15 percent. This reflects the proximity of the Planning Unit to the Portland/Vancouver Metropolitan Area and its attractiveness for a wide variety of recreational use. Over one million people live within a 1-2 hour drive of the area. Because growth of the metropolitan area is faster than increases in visitors from outside the region, the day use recreation orientation is expected to continue. Greatest recreational demands are: driving for pleasure, hiking, winter sports, camping, hunting, horseback riding, fishing, boating, picnicking and golf (State Comprehensive Outdoor Recreation Plan).

National Forest lands provide the greatest amount and variety of recreational opportunities in the Planning Unit. The Planning Unit accounts for about 45 percent of all recreation activity within eleven percent of the total area in the Mt. Hood National Forest. Recognition of the recreational importance of Mt. Hood occurred early, in 1926 the Secretary of Agriculture signed a Land Classification Order declaring recreation a high priority use on National Forest lands in the area. The BLM has developed a large picnic area at Wildwood and has some dispersed recreational use throughout their lands, primarily for hunting. There are very few recreational opportunities on private lands with the exception of the golf course and other activities at Bowman's Resort. Generally, private investments have been made in ski area development on National Forest lands. The limited recreation season and competition from low priced or even free public facilities have inhibited recreation investments on private land. Opportunities for private operations may become feasible for camping, snow play and horseback riding as the area becomes crowded enough to warrant these facilities and if public facilities do not further preempt the field. There is a general lack of community recreation facilities oriented to local residents. Dispersed recreation activities occur on private lands and may take the form of snowshoeing, cross-country skiing and wood cutting.

Excellent opportunities exist in the category of driving for pleasure. The most outstanding drive is the state highway route looping south of Mt. Hood. A variety of other driving experiences may be gained by using the secondary roads and logging roads which exist throughout the Planning Unit.

Trails throughout the area offer generally good hiking opportunities. Short hikes are available in the East Fork as well as long hikes along the Timberline and Pacific Crest National Scenic Trails. There are 207 miles of trails available in summer in the roadless areas in Clackamas County. There are no winter and spring trails available. 170 miles of trail are presently open to motorized vehicles. Hood River County has 57 miles of hiking trails with approximately 20 percent of the trails open to horses and four miles open to motorized travel.

A major recreation feature of the Planning Unit is the unroaded natural environment. A rudimentary network of trails provides access to points of interest and natural attractions at higher elevations. Lakes, streams,



waterfalls, mountain peaks and alpine meadows serve as the main attractions. Clean, clear water, solitude, wildlife variety, quietness, fresh air and natural scenery are the basic components to the recreation opportunity.

There are opportunities for some winter sports activities such as snow play, downhill and cross-country skiing, and showshoeing. Snow play areas are generally overcrowded and the unreliable snow at the few existing areas are the main drawbacks. There is a potential for good snow play areas, but they have not been developed. Snowshoe and cross-country skiing opportunities are limited. The heavier snow conditions are good for this activity but there is a lack of parking and marked continuous loop trails. Developed ski area resort facilities on Mt. Hood include Timberline Lodge, Mt. Hood Meadows, Multipor Ski Bowl and Summit Ski Area.

Camping opportunities are sufficient although use is not evenly distributed. The Trillium Lake Campground is frequently occupied at capacity during the primary season, while other campgrounds are rarely full. Recreationists prefer campgrounds near streams or lakes and sites which have more convenience facilities. Because the most suitable waterfront campground sites have already been developed, further demand for this type of opportunity cannot be met; improvement of underused campgrounds could increase their popularity. Many opportunities for backpack camping are available along the trails in the Planning Unit.

Picnicking opportunities are relatively limited at least in the developed situations. A major facility managed by the Bureau of Land Management, Wildwood, is the only large development. Most picnicking within the area occurs either at campgrounds or at undesignated spots along roadways and trails.

Hunting success is generally poor because of the scarcity of game, dense cover and difficult hunting conditions. Wildlife viewing occurs as an organized, planned activity as well as a secondary benefit to other recreation activities. Its recreational value is great, the experience often becoming the most rewarding part of the trip.

Fishing opportunities in the Planning Unit are dependent on the stocking of planted fish. There is heavy pressure on the few opportunities which are available.

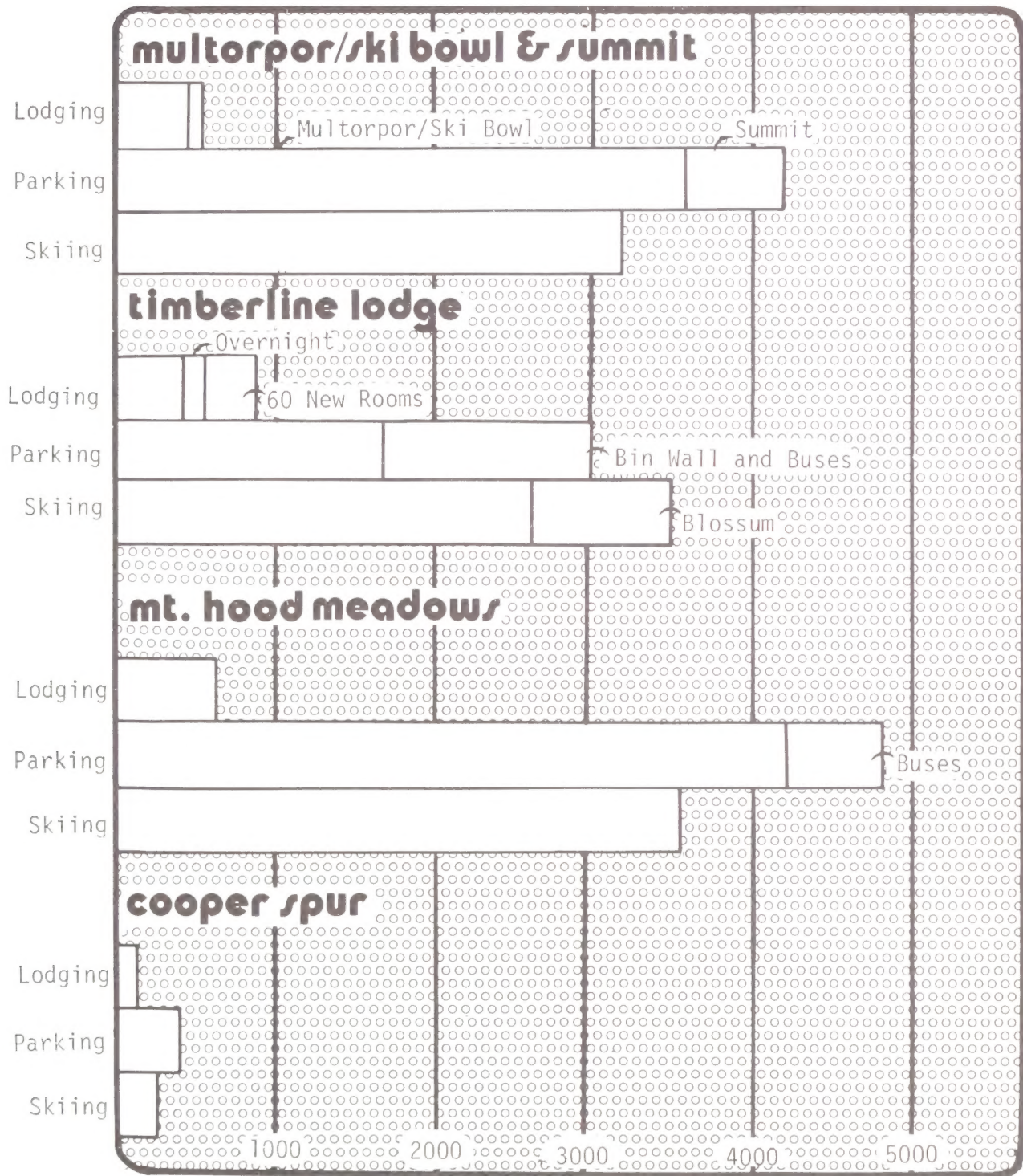
The opportunities for water sports in the Planning Unit are very limited. Trillium Lake offers opportunities for canoeing and rafting. However, there are no power, sailboat or river rafting areas. There is little chance for growth in this activity due to the small size and number of lakes in the area.

There are a variety of opportunities in the area for mountaineering. Mt. Hood is heavily used by climbers due to its ease of access and close proximity to the metropolitan area. The true mountaineering devotee finds Mt. Hood a good place for training and practice, while the novice finds it quite a challenge.



Figure 9

## Ski System Capacities



People at One Time



Figure 8

## RECREATION AREAS - MT. HOOD PLANNING UNIT

SITE	PAOT Capacity	Elevation (feet)	Season	Popularity Rating	nearby Attractions	Cond. of Facil.	Use Patterns	Ownership	1974 VUD (12 hr)
<b>CAMPGROUNDS</b>									
Alpine	50	5400	7/15-9/30	Fair	Good	Poor	Base camp for climbers & backpackers	FS	4600
Camp Creek	175	2200	5/15/-9/30	Fair	Fair	Poor	Weekend & highway traveler	FS	3000
Cloud Cap Saddle	15	6000	7/1-10/15	Excel	Excel	Poor	Heavy weekend, trailhead use	FS	600
Hood River Meadows	40	4400	6/15-10/15	Good	Good	Poor	Day use, trailhead use	FS	2800*
McNeil	185	2000	5/1-9/30	Fair	Fair	Poor	Spring, fall best; summer hot & dusty	FS	2700
Potlatch	50	3000	5/15-10/15	Good	Good	Fair	Pit stop, 24 hour use	FS	2800*
Riley	110	2100	5/1-9/30	Good	Fair	Fair	Horse camp, horses in units w/campers	FS	3800
Robinhood	120	3600	6/1-10/15	Good	Fair	Good	Overnight (24 hour weekend use)	FS	4600*
Routson	2700	2700	5/15-10/15	Fair	Fair	Fair	Agricultural workers mostly	County	
Sherwood	120	3100	5/15-10/30	Good	Good	Fair	Pit stop, rest stop, some 24 hour	FS	6600
Still Creek	190	3600	6/15-9/30	Poor	Fair	Poor	Weekend overflow, Trillium, never full	FS	3700
Tilly Jane	80	5600	7/1-10/15	Fair	Excel	Poor	Weekend use, day use	FS	2800
Toll Bridge	1800	1800	4/1-11/1	Good	Fair	Good	Agricultural workers mostly	County	
Toll Gate	75	1800	5/1-9/30	Fair	Fair	Poor	Weekend & highway	FS	7100
Trillium Lake	220	3600	6/1-9/30	Excel	Excel	Fair	Destination attraction, crowded week-ends & holidays	FS	27,000
<b>PICNIC AREAS</b>									
Clear Creek	50	1500	5/1-9/30	Poor	Poor	Poor	Rarely used	FS	200
Cloud Cap Parking	30	6000	7/1-10/15	Excel	Excel	Poor	Heavy day use in good weather	FS	4600
Barlow Toll Gate	50	1800	5/1-9/30	Good	Fair	Fair	Highway travelers	FS	700
Lost Creek	40	3000	5/1-9/30	Fair	Good	Good	Handicapped facilities	FS	100
Wildwood	1185	1300	5/1-10/1	Excel	Excel	Excel	Capacity on weekends, little week use	BLM	2700b
<b>SKI AREAS</b>									
Cooper Spur	250	4200	12/15-4/15	Good	Fr/Gd	Good	Local & get away from crowds skiers	Pvt/FS	1500**
Glade-Alpine Trails	1200	4-6000	12/15-4/1	Good	N/A	Fair	No charge, moderate use	FS	
Mt. Hood Meadows	4000	5500	10/15-6/30	Gd/Exc	Excel	Gd/Exc	Heavy weekend use, good weekday	Pvt/FS	67000**
Red Devil	100	3800	12/15-3/31	Fair	N/A	Fair	Weekends only	Pvt/FS	
Summit	200	3800	12/15-3/31	Good	N/A	Fair	Congested weekends, no charge	Pvt/FS	
Summit	800	4000	12/15-4/1	Fair	N/A	Fair	Open Saturday, Sunday, Holidays only	Pvt/FS	
Timberline	3400	6000	11/15-5/15	Good	N/A	Good	Most on weekends	Pvt/FS	
Multorpor-Ski Bowl	3100	3800	12/15-4/1	Good	N/A	Good	Weekends, nights best, little in week	Pvt/FS	
<b>SNOWPLAY</b>									
Snowbunny Lodge	300	3800	12/15-3/31	Fair	N/A	Fair	Weekends & Holidays only	Club/FS	
<b>ORGANIZATION SITES</b>									
American Legion	30	5600	7/1-9/15	Fair	Excel	Poor	Weekends (2-3 times/year)	FS	100
Cloud Cap (Crag Rates)	55	6000	Yr long	Excel	Excel	Fair	Weekends, summer & winter	Pub Srv	3300
Kiwanis (handicapped)	57	3000	Yr long	Good	Fair	Poor	Heavy summer	Club/FS	
Mazama	90	4100	Yr long	Excel	Good	Excel	Weekends	BSA	
Nanitch BSA	80	4200	Yr long	Good	Good	Good	Weekends, winter	BSA	
Phlox Point BSA	15	5600	Yr long	Good	Good	Poor	Weekends, winter	Church	
Seventh Day Adventist	25	2800	Yr long	Fair	Fair	Fair	Weekends	Pvt/FS	1000**
Snowshoe Club	25	6000	Yr long	Excel	Excel	Good	Weekend, summer (some winter)	FS	1000**
Tilly Jane (Alpinees)	20	5600	Yr long	Good	Excel	Fair	Weekend use, summer & winter	FS	600**
Tilly Jane Warming Hut	30	5600	Yr long	Good	Excel	Poor	Weekend use, winter mainly	Club/FS	
Trails Club	50	4200	Yr long	Good	Good	Excel	Weekends	BSA	
White River BSA	250	4300	Yr long	Excel	Good	Good	Weekends, winter	Club/FS	
Wy'east	24	5400	Yr long	Good	Good	Poor	Winter weekends	Club/FS	

\* Open only on weekends in 1974.




\*\* Adjusted use figures.

(All other than BLM and County, located on Forest Service land.)

1/ Visitor Use Days - See Glossary

# mt. hood planning unit

## RECREATION

-  Campground
-  Picnic Area
-  Winter Sports Area
-  Ski Permit Area
-  Organizational Site
-  Trail
-  Mt. Hood Wilderness

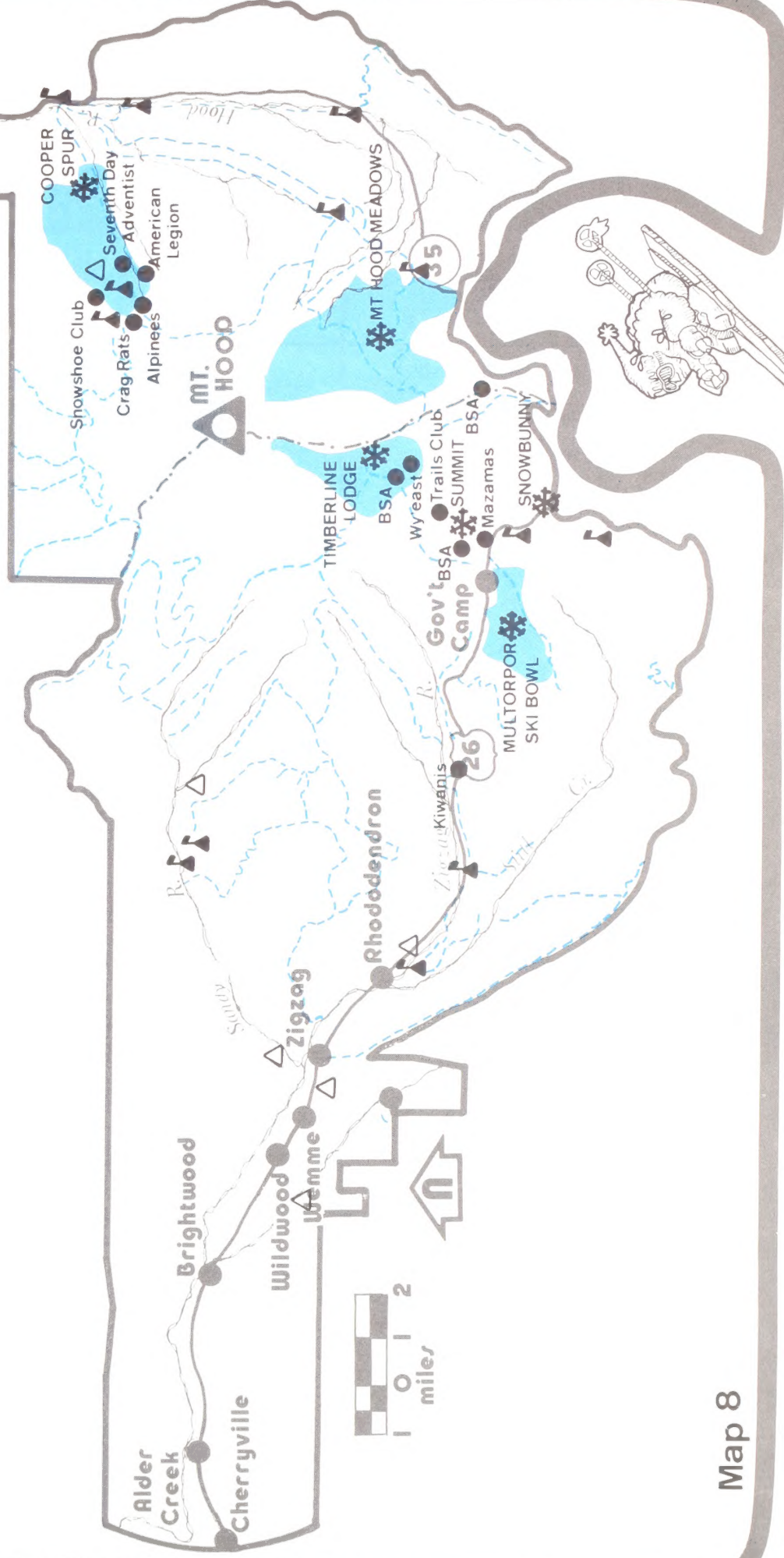




Figure 10 - VISITOR USE DAYS  
MT. HOOD NATIONAL FOREST, ZIGZAG DISTRICT AND NATIONAL FOREST AVERAGES  
COMPARED (Percentage Distribution)

Activity	Mt. Hood Forest 1/	Hood River & ZZ Dist 1974 2/	National Forests (US Av. 1971 1/
Camping	9.0%	25.4%	24.0%
Picnicking	15.2	5.8	4.0
Winter sports	7.0	17.1	6.0
Developed site subtotal	31.2	48.3	34.0
Driving	30.0	1.3	26.0
Fishing/hunting	4.0	7.2	14.0
Horse/walk/hike	6.0	23.9	6.0
Subtotal	40.0	32.4	46.0
Other	28.8	19.3	20.0
TOTAL	100.0%	100.0%	100.0%

1/ CRAG Staff Working Paper. May 1974. Estimates and Projections  
Visitor Use Days by Activity, Mt. Hood NF 1970 and 1990.

2/ RIM Printouts, CY 1974. USFS.

Cultural and historic sites offer recreation opportunities to visitors. Cloud Cap Inn and Timberline Lodge are both National Register Sites and offer education in unique architecture and outstanding scenery.

Numerous routes along the Barlow Road have been marked for visitor interest. An area along Highway 26 has been developed as a bridle trail to give visitors the experience of traveling an historic route.

Projected Recreation Demands. Recreation projections are available from the Pacific Northwest River Basins Commission and the Oregon State Comprehensive Outdoor Recreation Plan (SCORP). In addition, a recreation facility demand study was done for the Planning Unit by the BLM (Wilsey and Ham, 1974).

The Regional Recreation Data Program for the Northwest compiled by the River Basins Commission in 1975 and revised in 1976 provides a regional recreation overview. This document incorporates and updates 1972 SCORP information. Because the revised SCORP for Oregon is still being prepared, the Regional Recreation Data is the best information available. The River Basins data, Figure 11, demonstrates the level of importance of various activities in counties near the Mt. Hood area and the number of trips made to and from the county by activity. Walking and hiking, sightseeing and driving for pleasure, and picnicking were identified as the most significant activities in the counties with the highest

populations and greatest amount of urbanization. Even though the data is not specific to the level of demand in the Planning Unit, it does provide a regional perspective.

Conclusions made in the Wilsey and Ham study also give some indication of future demands; they are not proposed as recommendations and may not be possible to meet in the Planning Unit. The study findings were:

1. Overnight camping is the greatest unmet demand, the existing 582 units would have to increase to 1285 by 1990 to meet the demand.
2. 160 miles of additional trails are needed in Clackamas County by 1990, but most are needed outside the Planning Unit.
3. Snow sport other than downhill skiing must double by 1990 to meet the demand.
4. 204 picnic units must be added to the present 385 to meet the 1990 demand.
5. Urbanization in mountain communities will require development of community recreation facilities.
6. New 18 hole golf courses will be needed by 1990 to meet the demand.
7. Demand for hunting and fishing, although moderately high, cannot be satisfied in the Planning Unit. The resources for these activities are presently fully utilized.
8. There is currently a great demand for wildlife viewing opportunities. A recent study (Oregon Wildlife, 1975) stated that 93 percent of Oregonians participate in some form of wildlife viewing. The demand may be expected to increase with the population levels, although the wildlife diversity will diminish.
9. All the indications in the skiing business at Mt. Hood suggest that there is a strong demand for skiing opportunities. The capacity of the existing permit areas could allow a doubling of use. There is congestion on the better days and if facilities are added, they will be used. A major concern is that additional facilities to accommodate peak skier visits will have less profit margin because operators cannot afford to provide more facilities for peak occurrences when those facilities may be idle on the majority of days.

Based on Forest Service use statistics, skiing visits have increased an average of six percent annually for the last ten years. There have been wide use fluctuations from year to year.



Given the current market situation, skiing visits originating in the Mt. Hood market area may increase from about 31 to over 200 percent, depending on base assumptions used. Relating increases in skiers to increase in the 15-44 year age group over the next 20 years, it can be anticipated that ski visits will increase by 42 percent. 1975 Oregon SCORP projections (SCORP, Technical Document I) indicate that a 31 percent increase in skier visits can be expected. The Western Environmental Trade Association (WETA) projects skiing visits to increase over 200 percent by 1995.

The translation of the projected percentage increases in total market skier visits results in a projected increase of about 163,200 skier visits to the Mt. Hood area using the population based increase of 42 percent, about an additional 100,000 skier visits if the more conservative Oregon State statistics are used, and about 940,000 skier visits using WETA's assumptions. This assumes that Mt. Hood will maintain a market capture of 26.2 percent. However, if Mt. Hood ski facilities could capture a larger than one-quarter portion of the skier market, skier participation at Mt. Hood facilities could rise at a rate greater than the 31-200 percent increase projected for the market area as a whole over the next 20 years.

Because of limited resources and the need to provide quality experiences, the projected demands for the Planning Unit may not be met. Revisions to the State Comprehensive Outdoor Recreation Plan (SCORP) indicate that the Forest Service and BLM role in Oregon is to provide dispersed, more primitive recreation opportunities. The state, counties, cities and private enterprise role is to provide the high density, developed recreation facilities. Therefore, even though studies show a critical demand for additional high density developed areas in the Mt. Hood area, these will not necessarily be met on federal lands.

## Recreation Trips Into and Out Of Counties (by hundreds) for 1975

ACTIVITY NUMBER & NAME	WASHINGTON						OREGON						CLACKAMAS						HOOD RIVER						MULTNOMAH						WASHINGTON					
	CLARK			CLACKAMAS			HOOD RIVER			MULTNOMAH			CLACKAMAS			HOOD RIVER			MULTNOMAH			CLACKAMAS			HOOD RIVER			MULTNOMAH			WASHINGTON			WASHINGTON		
	Into	Out Of		Into	Out of		Into	Out of		Into	Out of		Into	Out of		Into	Out of		Into	Out of		Into	Out of		Into	Out of		Into	Out of		Into	Out of		Into	Out of	
1 Camping	1375	1811		6326	16596		3680	286		2726	24751		3680	286		2726	24751		3680	286		2726	24751		3680	286		2726	24751		2057	4798		2057	4798	
2 Picnicking	2661	2619		18843	13398		1904	652		17281	37756		1904	652		17281	37756		1904	652		17281	37756		1904	652		17281	37756		10169	7044		10169	7044	
4 Sightseeing & driving for pleasure	16886	14551		47807	30461		7376	2672		74295	105400		7376	2672		74295	105400		7376	2672		74295	105400		7376	2672		74295	105400		23596	28864		23596	28864	
5 Fishing	4115	3806		27894	22021		648	1514		30479	31745		648	1514		30479	31745		648	1514		30479	31745		648	1514		30479	31745		3799	6511		3799	6511	
6 Boating	7088	588		15041	12083		175	294		17659	21746		175	294		17659	21746		175	294		17659	21746		175	294		17659	21746		1809	6149		1809	6149	
7 Waterskiing	2531	962		6005	5201		97	197		5423	6447		97	197		5423	6447		97	197		5423	6447		97	197		5423	6447		770	2094		770	2094	
8 Walking/Hiking	28915	8580		78231	63877		6185	2117		154810	264457		6185	2117		154810	264457		6185	2117		154810	264457		6185	2117		154810	264457		81010	40821		81010	40821	
9 Hunting	913	1505		4284	4108		171	144		4819	4644		171	144		4819	4644		171	144		4819	4644		171	144		4819	4644		895	1656		895	1656	
15 Snow activities	201	84		7663	4473		2417	304		12519	14370		2417	304		12519	14370		2417	304		12519	14370		2417	304		12519	14370		169	4893		169	4893	

## Recreation Trips Into and Out of Counties (by hundreds) Projected for Year 2000

1 Camping	2079	4075		9452	26485		5490	344		4118	27791		5490	344		4118	27791		5490	344		4118	27791		5490	344		4118	27791		3109	7174		3109	7174	
2 Picnicking	3567	5894		25516	21382		2585	784		22903	42392		2585	784		22903	42392		2585	784		22903	42392		2585	784		22903	42392		14209	10533		14209	10533	
4 Sightseeing & driving for pleasure	23102	32748		71197	48611		10940	3214		94233	116344		10940	3214		94233	116344		10940	3214		94233	116344		10940	3214		94233	116344		53307	43160		53307	43160	
5 Fishing	5496	6963		42443	35142		802	1821		36783	35644		802	1821		36783	35644		802	1821		36783	35644		802	1821		36783	35644		5185	9736		5185	9736	
6 Boating	9555	1482		23118	19283		253	354		21135	24417		253	354		21135	24417		253	354		21135	24417		253	354		21135	24417		2445	9195		2445	9195	
7 Waterskiing	3685	2648		9679	8301		162	237		7012	7239		162	237		7012	7239		162	237		7012	7239		162	237		7012	7239		1251	3131		1251	3131	
8 Walking/Hiking	35518	19308		110257	101938		8079	2547		191779	296933		8079	2547		191779	296933		8079	2547		191779	296933		8079	2547		191779	296933		99004	5917		99004	5917	
9 Hunting	1285	2572		6566	6556		239	173		6187	5214		239	173		6187	5214		239	173		6187	5214		239	173		6187	5214		1333	2476		1333	2476	
15 Snow activities	285	1144		11438	7138		4026	366		15706	16135		4026	366		15706	16135		4026	366		15706	16135		4026	366		15706	16135		243	7316		243	7316	



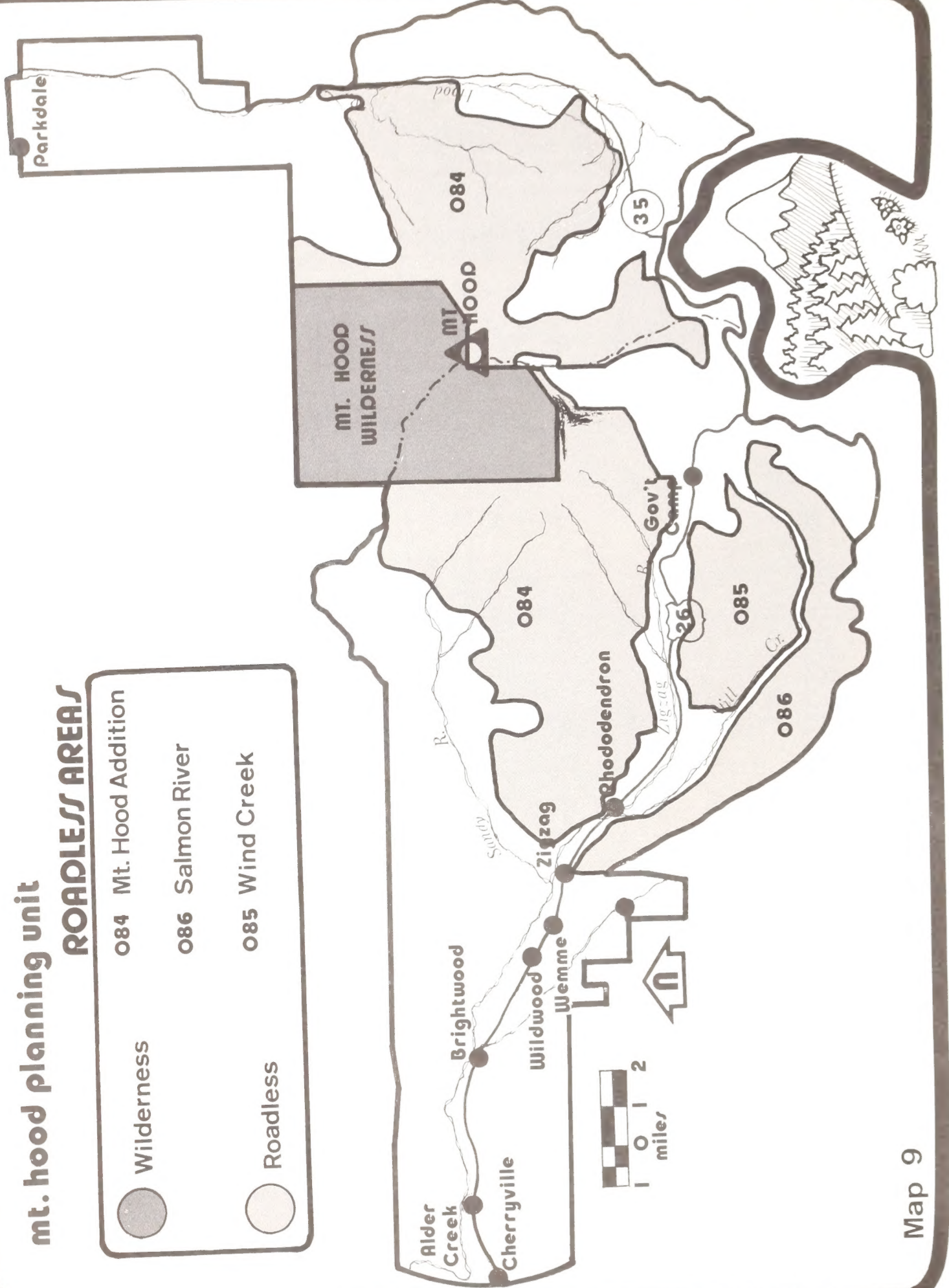
# mt. hood planning unit

## ROADLESS AREAS

- 084 Mt. Hood Addition
- 086 Salmon River
- 085 Wind Creek

Wilderness

Roadless



## WILDERNESS

The Mt. Hood Wilderness encompasses 14,100 acres around the mountain's summit. Recreation use of the Mt. Hood Wilderness averages about 21,000 visitor days per year, fluctuating with the length of the summer season. Most use occurs on weekends and day use of the wilderness is frequent; there are 12 entry points to the wilderness and access from any trailhead is short, two hours or less. Focal points of interest are the open meadows and shelters.

The Timberline Trail which circles the mountain is very popular and includes part of the Pacific Crest National Scenic Trail. Occasionally, the numbers of people using the trail preclude an isolated wilderness experience. It is a corridor of concentrated activity with wilderness qualities above and below it.

In spite of the recent surge in wilderness visits and past use, wilderness qualities in the area remain essentially unimpaired. Protection of meadow areas has prevented additional degradation of the area from the increased numbers of users. During the 1975 and 1976 seasons, the condition of the wilderness resource improved slightly. Management efforts have led to partial restoration of some abused meadows.

## ROADLESS AREAS

The three roadless areas in the Planning Unit are shown on Map 9. They cover a total of 52,050 acres. All occur on National Forest lands and therefore, have been reviewed for wilderness values.

In 1973, the U.S. Forest Service inventoried roadless and undeveloped areas, 5000 acres or larger, within National Forest boundaries. These lands were evaluated for future study for possible inclusion in the National Wilderness Preservation system. Roadless areas were identified and two, Zigzag Mountain and the Mt. Hood Addition which make up the majority of roadless area 084 were selected by the Forest Service as Wilderness Study Areas (WSA).

Since the Roadless Area Review and Evaluation (RARE), the Mt. Hood Forest has identified and inventoried one additional roadless area at Wind Creek Basin and three areas adjacent to the designated Wilderness Study Areas. These additional roadless areas were also evaluated for Wilderness Study. As part of the new inventory of roadless and undeveloped areas (RARE II), the numbering system for roadless areas in the Planning Unit has been revised. The six roadless areas and roadless area additions around Mt. Hood (i.e. Roadless Areas 55, 604, 614, 615, 617 and 618) and the 450 acre Eliot Branch added during RARE II were combined to form one area; the other two roadless areas remained the same size but received a new number.

The Wilderness Study Areas selected in 1973 are already allocated to Wilderness Study and all alternatives in this plan reflect this allocation.



Management direction for the nonselected roadless areas in the Planning Unit will be determined through this planning process. Wilderness criteria (i.e. suitability, availability, need and manageability are evaluated in the Rationale for the Proposed Plan on page 163.

#### ROADLESS AREAS IDENTIFIED WITHIN MT. HOOD PLANNING UNIT

Name	Acres Inside Planning Unit	Acres Outside Planning Unit	Areas Selected for Wilderness Study by Roadless Review Process
084 Mt. Hood Addtn	38,050	450	33,500 <u>1/</u>
085 Wind Creek	5,900		
086 Salmon River	8,100		
Total	52,050		

1/ Zigzag Mountain WSA - 18,000 acres  
Mt. Hood Addition WSA - 15,500 acres

Mt. Hood Additions (38,500 acres). 2/ This area ranges in elevation from 1600 feet near Clear Creek to the summit of Mt. Hood. It is contiguous with the Mt. Hood Wilderness area and is characterized by steep topography, glaciers, glacial streams, geological features, rockslides and brush fields. Major river systems include the Sandy, Zigzag, Salmon, White and East Fork Hood Rivers. There are small lakes, high meadows and openings produced by old burns. Several small streams have their headwaters in this area.

The area offers a variety of hiking experiences and is heavily used for that purpose. The Pacific Crest National Scenic Trail and the Timberline Trail traverse this area. Mountain climbing and cross country skiing are also popular. Three ski areas (Timberline, Mt. Hood Meadows and Cooper Spur) border the area and the township immediately west of the Wilderness is in the Bull Run Reserve.

A small portion of the area, the 450 acre Eliot Branch, lies in the Lava Planning Unit. Therefore, although it has been considered as part of the entire roadless area unit in this planning process, because the Eliot Branch area is not recommended for wilderness study, use for this area will be determined in the Lava Planning Unit Plan. The Lava Planning Unit is scheduled for completion of a Land Management Plan in 1978. Until this management plan is completed, the Eliot Branch area will remain in a roadless condition.

Senate Bill S658 introduced in 1977, proposes the Mt. Hood Additions roadless area for wilderness. The Zigzag Mountain and Mt. Hood Addition Wilderness Study areas are within the area. Approximately 640 acres in the area is in private or county ownership.

2/ 38,050 acres in the Mt. Hood Planning Unit and 450 acres in the Lava Planning Unit.

**Figure 12 Roadless, Wilderness Study and Wilderness Areas**



\* WITHIN 100 MILES OF PORTLAND

\* NON SELECTED ROADLESS AREA

⊛ WILDERNESS STUDY AREA

◆ CLASSIFIED WILDERNESS



Wind Creek (5900 acres). The area ranges in elevation from 2400 to 5066 feet on Tom Dick Mountain. The area has steeply sloped, rolling terrain and Douglas-fir forest with grassy openings. Wind Creek and Lake, Mirror Lake and Tom Dick Mountain are the major geographic features. Hiking, berry picking, camping and hunting occur without heavy use except at Mirror Lake which is highly popular with recreationists.

The area is bordered by Highway 26 and the Multitorpor/Ski Bowl Ski Area. It is separated from the Salmon River Roadless Area to the south by Still Creek Road.

Salmon River (8100 acres). This area is a steep walled, heavily timbered north-facing slope. Elevations range from 1600 feet to 5000 feet at Devils Peak. Numerous hiking trails cross the area and Veda Lake is popular for hiking and berry picking.

The area is separated from the Wind Creek Roadless Area on the north by Still Creek Road.

During the 1973 RARE process, this area was a portion of a larger 38,000 acre roadless area. In 1974, the entire area was reviewed in the environmental statement done for land management planning in the Roaring River and Salmon River Planning Units. The portion on the Salmon River side (south) of the ridge was identified for roadless recreation (18,600 acres) and for general forest (roaded multiple use, 11,400 acres). The remaining portion (8100 acres) on the Still Creek side (north) of the ridge was identified for roadless area use pending the completion of the Mt. Hood Planning Unit Plan because it is not part of the Salmon River Watershed.

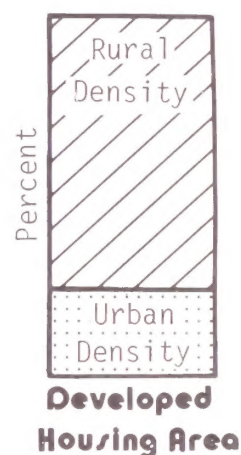
Land management planning on the Mt. Hood Forest outside the Planning Unit has resulted in management decisions on the Eagle, Gorge, Roaring River and Salmon River Roadless Areas. The chart on page 55 indicates the effects of decisions through unit planning on commercial forest land and harvest in the unroaded areas.

Within 100 air miles of Portland, Oregon there are: 614,305 acres of non-selected roadless area; 136,200 acres allocated as Wilderness Study Areas; and 482,214 acres of classified wilderness. Although not completely within the 100 mile radius, there are 235,404 acres in the Mt. Rainier National Park. These areas are presently available for roadless, backcountry type recreation.

## HOUSING

Housing patterns reflect the wide variety of demands from employees of local businesses and government, retired persons, farm families and migrant workers in the Mt. Hood area and from persons living outside the Planning Unit. Vacation second homes make up a significant part of the housing mix, particularly in the westside corridor where they represent about one-half of the existing housing. In 1975 there were approximately 1300 year round homes, 1200 seasonal homes and 150 migrant units in the Planning Unit.

**Westside Subdivisions  
1930-1975**



The available overnight accommodations within the area are located primarily in Government Camp, Welches and Rhododendron including approximately 240 condominiums and motel units. The Clackamas County Comprehensive Plan designates Government Camp and Welches as the primary tourist-oriented recreation areas in the Planning Unit. Additional facilities are available at Timberline Lodge which currently has 57 units and a proposed 120 room expansion.

Overnight facilities help disperse recreational use throughout the week, reducing peak demands on weekends. The trend has been toward luxury condominiums rather than more inexpensive hostel-like lodging. Future provision of overnight facilities on National Forest and BLM lands must be weighed carefully to determine its impact on available opportunities on private lands.



# mt. hood planning unit SMALL PRIVATE OWNERSHIP & DEVELOPED LANDS

- Developed Land
- Leased Land
- Private Land, 5 Acres or Less

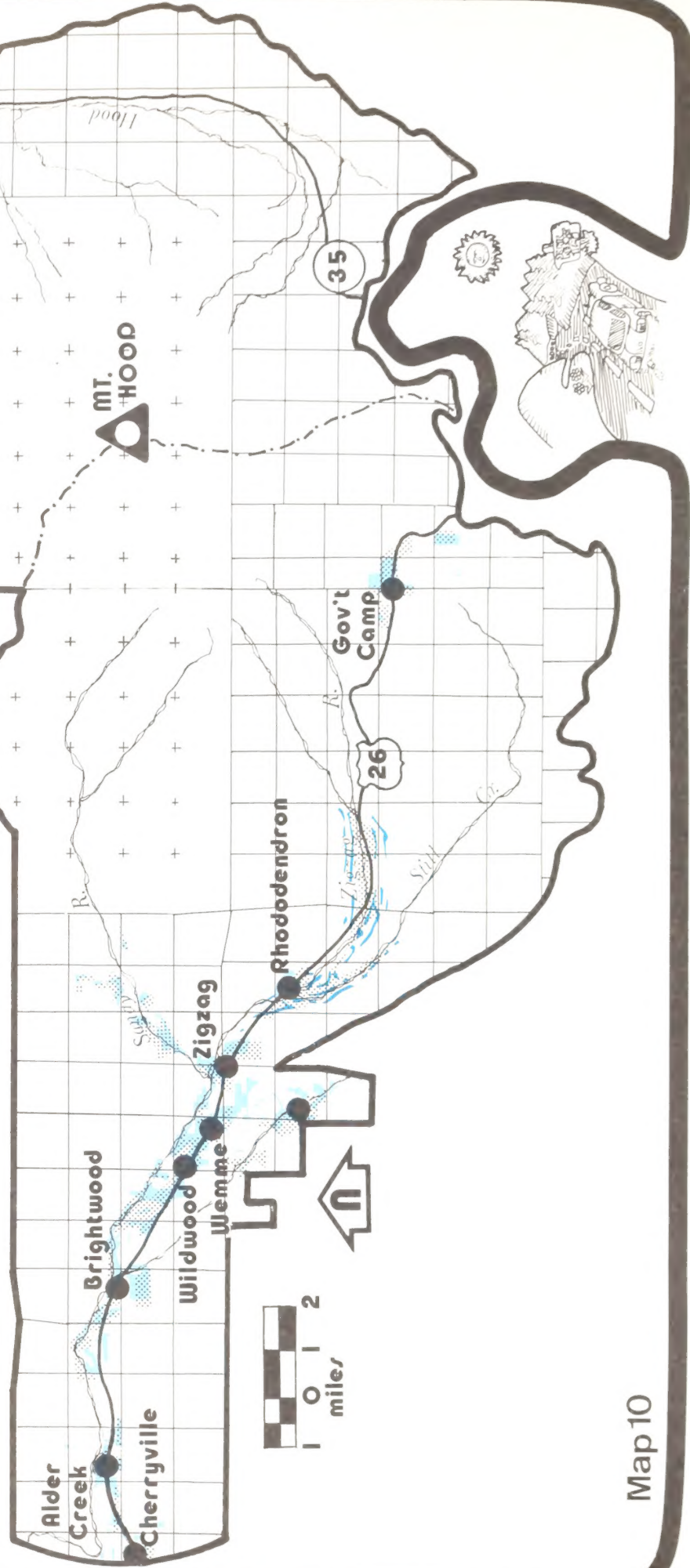


Figure 13

Census Areas	Year Round Housing Unit Needs				Seasonal Housing Unit Needs				Actual/Potential Demand				Potential Supply		
	(1) 1975	(1) 1980	(2) 1990	(1) 2000	(1)&(2) 1975	(1) 1980	(2) 1990	(1) 2000	Total Seasonal and Year Round Housing Need				Estimated Housing Capacity*** (1)		
	(1)&(2) 1975	(1) 1980	(2) 1990	(1) 2000	(1)&(2) 1975	(1) 1980	(2) 1990	(1) 2000	(1)&(2) 1975	(1) 1980	(2) 1990	(1) 2000	2 ac/ Unit	5 ac/ Unit	10 ac/ Unit
Mt. Hood CCD	-	1826- 2397	-	3287- 4701											
Parkdale CCD	-	691	-	-											
Total Census Areas	-	2517- 3088	-	4151- 4710											
Mt. Hood Plng Unit															
Clackamas Co Prtn	1275	1525- 2001	-	2529- 3925	1165	1352- 1774	-	2240- 3481	2460- 2460-	3198- 4905	5084- 6283	5275- 7910	6393	5620	5365
Hood Rvr Co Prtn	120	138	-	217	160	182	-	287							
Total Planning Unit	1395	1864- 2139	2209- 2948	2745- 4142	*1076- 1325	1524- 1956	**2675- 4175	2530- 3768							
Projected Difference Between Demand & Supply For Housing Units															
										1975	1980	1990	2000		
										3663- 3923	2288- 3185	110- 1299	-1527- 1108		
										2900- 3160	1525- 2422	-653- 536	-2290- 345		
										2645- 2905	1270- 2167	-908- 281	-2545- 90		

NOTES: \* Reduced by 110 units attached to other units. May be seasonal or year round.

\*\* Reduced by 550 units attached to other units. May be seasonal or year round.

\*\*\* Assumes land available for development remains constant.

#### Housing Density

2 Acre/Unit

5 Acre/Unit

10 Acre/Unit

SOURCES: (1) Beals, Herbert K. 1975. Population Projections, Housing Need and Capacity in the Mt. Hood Planning Unit.

(2) Leland Company. October 1976. Economic Impact Analysis of Future Growth in the Mt. Hood Study Area. Western Environmental Association. Portland, OR.



Projections indicate that housing needs for permanent and vacation second homes will increase from about 94-191 percent by the year 2000; this is equivalent to 5275-7910 houses. The land area available for additional housing and county density requirements will result in higher population densities as this housing need is met. About 2500 acres of land are currently in residential use. Large portions of designated and platted but unbuilt residential areas remain to be filled in future years. A high percentage (30-40%) of the housing is substandard according to U.S. Census standards; this reflects the high level of absentee ownership and the age of the dwellings which often date back to the 1930s.

## COMMERCIAL

There are two basic types of commercial activity intermixed in the Mt. Hood area: tourist commercial enterprises such as motels and restaurants, and general commercial uses including retail stores and services for the resident communities.

Overall commercial demands fluctuate with the seasons and during the week as in many recreational areas. Growth in new commercial services will be in direct proportion to the increase of tourists, seasonal home ownerships and permanent residents.

The largest concentrations of commercial use are found in Rhododendron, Government Camp, Parkdale and along a three mile stretch of Highway 26 in the Wildwood, Wemme and Zigzag areas.

Additional smaller commercial areas are located at Alder Creek, Sleepy Hollow, Brightwood, Bowman's Resort and Mt. Hood (immediately north of the Planning Unit on Highway 35).

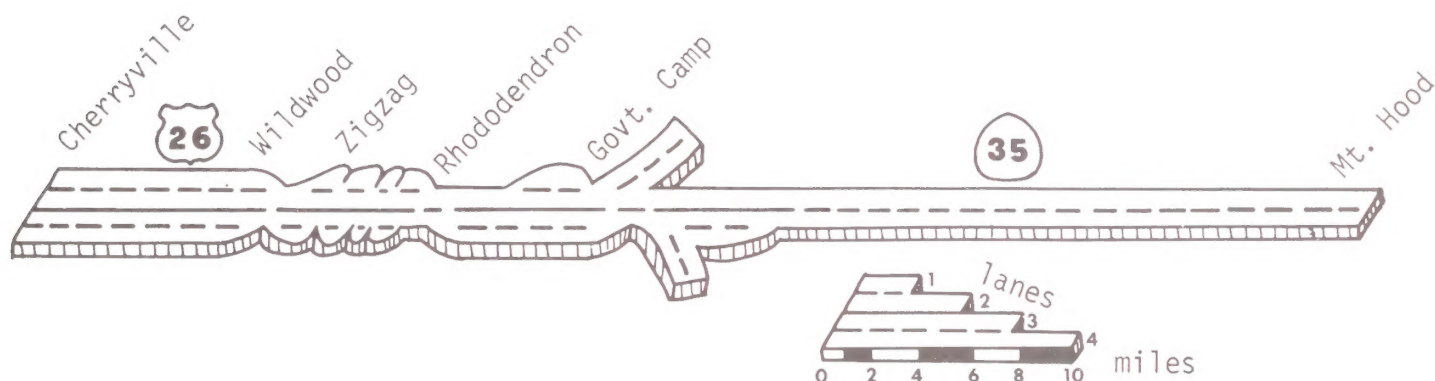
The present amount of designated commercial land within existing centers is about 55 acres. A high percentage of this area is vacant or underutilized. Government Camp has the larger area designated for use but less than half being used.

Strip development along Highway 26 in the westside corridor, often the result of commercial activity, is of major concern because it contributes to congestion and presents a poor image to the traveling public. Some of the problems which directly relate to the present condition are: (1) the numerous ill-defined and uncontrolled points of highway access; (2) the many unrelated styles of architecture, landscaping, if any, and signing; (3) the uncoordinated traffic circulation and parking arrangements within commercial areas; (4) the unfinished or cluttered appearance of some existing commercial developments; and (5) the indiscriminate grading or clearing of land and tree cutting in several key highway sections. Most of these problems could be minimized or avoided with cooperative site planning and community effort in carrying out the County Comprehensive Plans.



General Geographical Description of State Highway System. The state highway network serving the Mt. Hood Planning Unit consists of approximately 60 miles of highways which include U.S. 26 (27 miles), Oregon 35 (27 miles) and Timberline Highway (5½ miles)(see Map 11). The Mt. Hood Highway (U.S. 26) is the most direct route between Portland and the Mt. Hood recreational areas (55 miles) as well as Bend, serving both recreational and commercial transportation functions. It enters the Planning Unit on the west, proceeds east to the Warm Springs Interchange (four miles east of Government Camp) and then south to Bend as the Warm Springs Highway. Oregon 35 continues eastward and northward from the Warm Springs Interchange to complete the Mt. Hood Loop to Hood River (41 miles). The Timberline Highway, a two lane secondary highway, forks northward off U.S. 26 just east of Government Camp. It is a dead end spur carrying primarily recreational traffic to Timberline Lodge and the adjacent ski area.

Figure 14



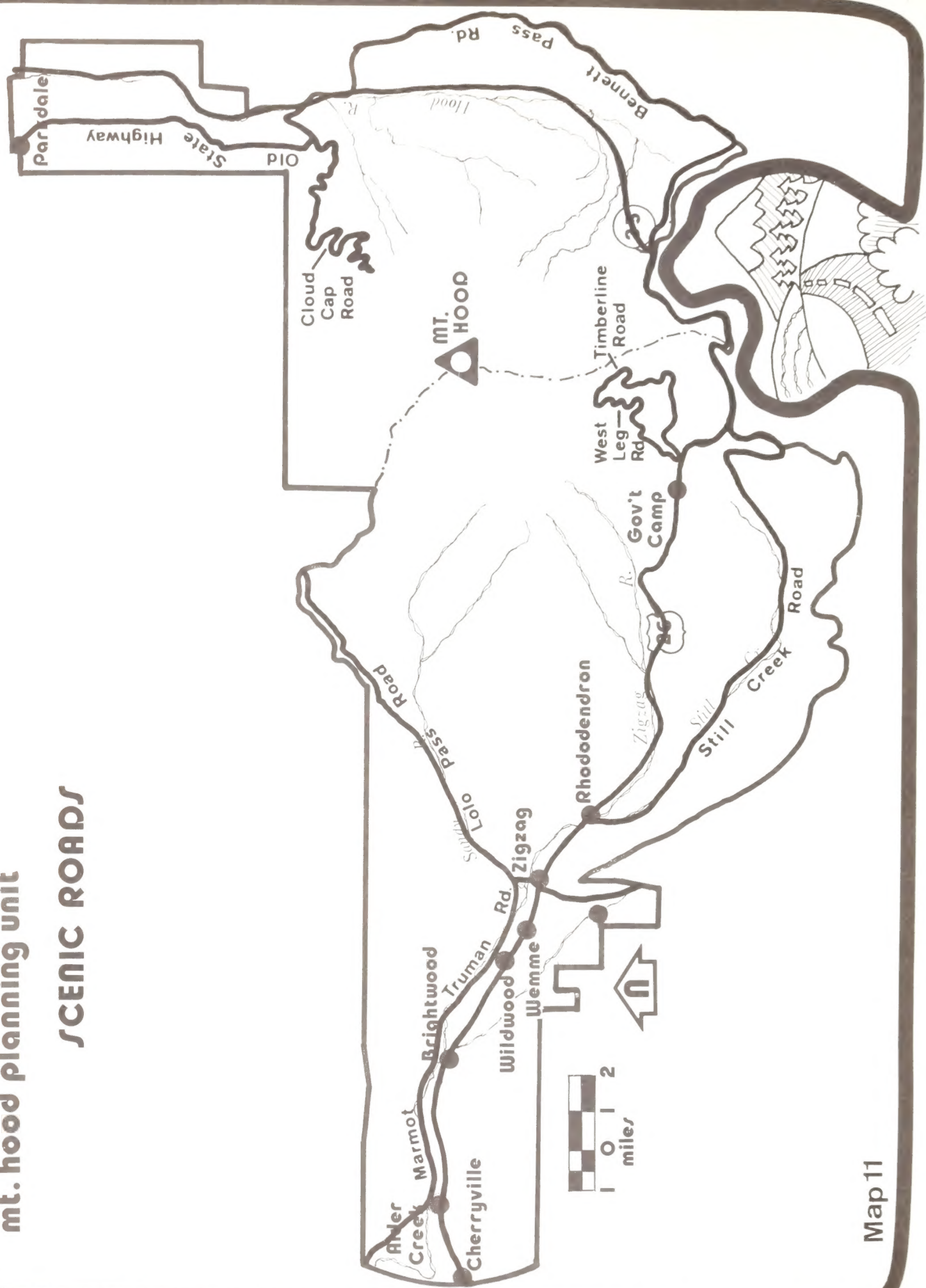
Present Capacities, Designs and Average Daily Traffic. The U.S. 26 consists of interspersed four lane, two lane and two lane plus climbing lane sections as shown schematically in Figure 14. Traffic volumes are presently below the design capacities\* in all sections, though the two lane Wildwood/Welches Road (Zigzag) section is operating very close to capacity and results in occasional traffic jams during peak periods, particularly under bad weather conditions.

\*Design capacity assumes a service level of D according to the Department of Transportation. Level D is associated with an unstable flow (maximum volume attainable for short periods) at 35 mph operating speed.



# mt. hood planning unit

## SCENIC ROADS



Map 11

The average daily traffic (ADT) on Oregon 35 between Warm Springs Interchange and the community of Mt. Hood, ranges from 320-430 vehicles per day. These volumes are less than 1/10 the existing capacity of this two lane facility. The Timberline Highway carries an average volume of 1050 vehicles per day.

Seasonal and Weekly Variations in Traffic Volumes on the Mt. Hood Highway. Information on seasonal variation in traffic volume on highways within the Mt. Hood Planning Unit is very limited. During 1972, counts were taken on U.S. 26 at several locations at different times of the year and analysis of these traffic counts provide estimates of the seasonal variations. Analysis of these counts showed the following variation by day of week and season of the year on the Mt. Hood Highway between Timberline Highway and the Warm Springs Interchange. The 1972 average annual daily traffic (ADT) was 2700 vehicles per day. Weekday summer traffic was approximately 110 percent of the ADT while the weekday traffic in March was 56 percent of the ADT. Summer weekend counts show traffic at 180 percent of the ADT and winter weekend counts at approximately 140 percent of the ADT.

Maintenance. The State Highway Division maintenance forces keep all state highways in the Planning Unit open year round and manage snow removal and sanding to maintain traffic flows on the entire system.

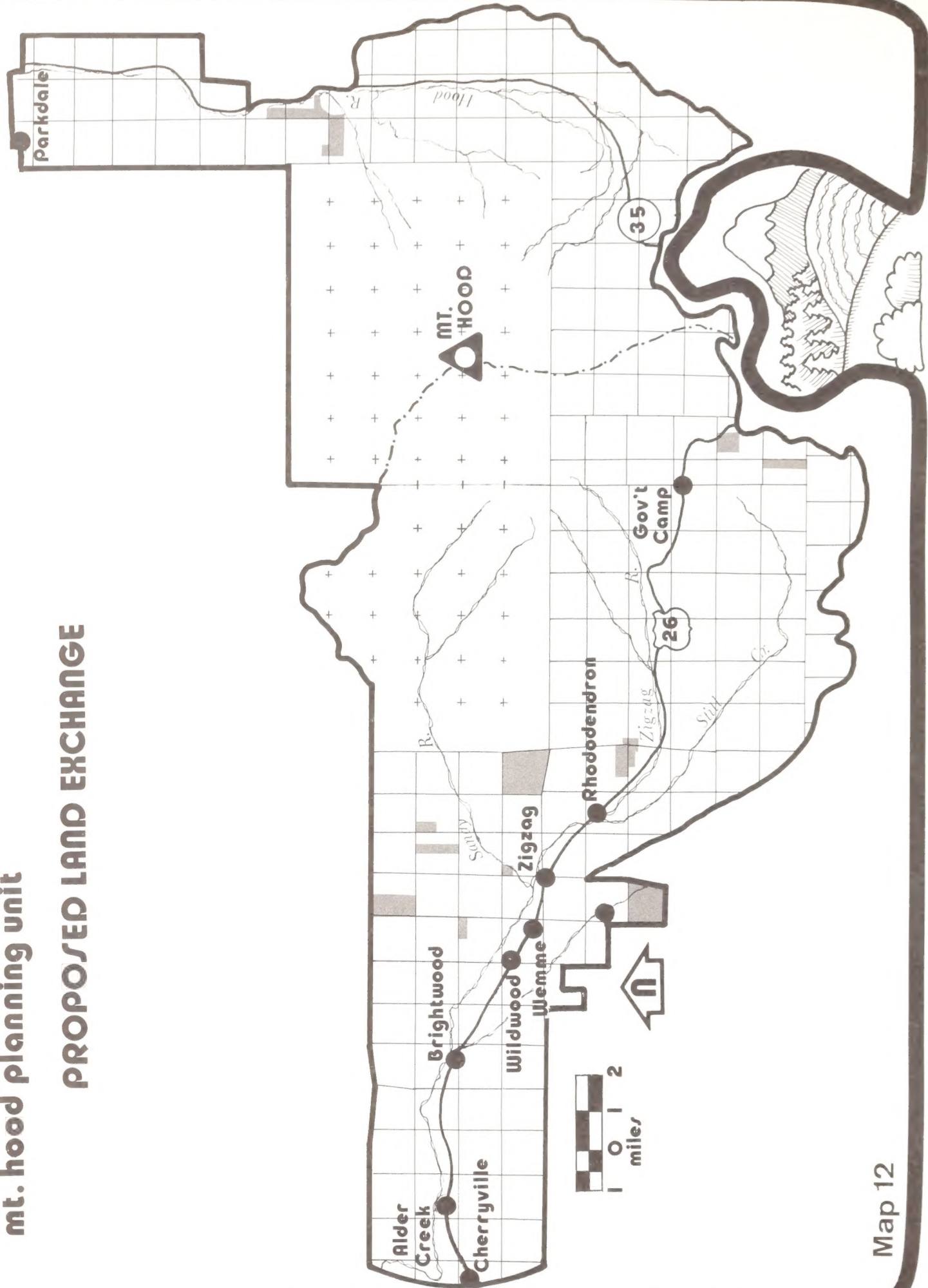
Local Circulation in Population Centers. Local circulation patterns in residential and commercial areas in the Planning Unit (notably between Brightwood and Rhododendron and at Government Camp) reduce the capacity of U.S. 26. Moreover, the heavy traffic on U.S. 26 impedes free circulation and access within, to and from these areas. As the area continues to develop, it will become imperative that measures be taken to reduce these conflicts by means of some combination of grade separation, signals, turning lanes and increased restrictions on direct access.

Mass Transit. A "park and bus" shuttle program is operating between Government Camp and Timberline Lodge. Tri-Met Bus System also operates two buses from the Portland area. Seats are on a reservation basis and pickup is from specified points. An additional shuttle bus runs from the Welches area to Government Camp and Timberline.

At present, the average skier is discouraged from bus transportation because private cars seem more convenient and economical. The relatively short driving distances from the Portland metropolitan area to Mt. Hood ski areas contributes significantly to this problem and contributes to heavy traffic tie ups which occur occasionally during adverse weather conditions in the winter season.



# mt. hood planning unit PROPOSED LAND EXCHANGE



## LAND OWNERSHIP ADJUSTMENT

Land ownership adjustments are sometimes necessary for effective land management. These efforts may be directed toward a variety of types of programs for recreation, timber management, game management or protection of endangered species, municipal watersheds, flood and fire control, soil erosion, wilderness and improving access.

Current Forest Service projects are shown on Map 12; these projects and procedures are described in the Appendix.

## FIRE MANAGEMENT

Generally, the fire situation is not serious in the Mt. Hood Planning Unit due to the moisture levels in the western two-thirds of the area almost year round. In the last ten years, small fires have been numerous, yet the acreage burned has been negligible. Sixty percent of these fires are attributed to campfires and smoking associated with recreational activity. Debris burning at residential sites and industrial fires relating to timber harvesting and management account for an additional 15 percent. Lightning caused 12 percent of the fires and miscellaneous other ignition sources such as burning vehicles, house fires, fallen powerlines, firecrackers and incendiary fires generated the remainder.

Fire Occurrence on the Mt. Hood Land Use Planning Unit, 1965-1975

Cause	# of Fires	% of Total
Lightning	20	12
Recreation	98	60
Refuse burning	10	6
Industrial	15	9
Other	21	13
TOTALS	164	100%

However, this is not to imply that serious fires cannot occur here during periods of critical fire weather. The 1952 Zigzag Fire which swept over 1750 acres of Flag Mountain, Zigzag Mountain, Tom-Dick Mountain and Camp Creek is indicative of the conflagrations which have affected the area in the past. Approximately 80 percent of the Planning Unit has been burned within the last 90 years. Characteristically, the eastside has more frequent but smaller wildfires than the westside of the area where fuel levels are higher.

The potential for wildfire occurrence can be evaluated by analyzing the availability of forest fuels or "hazard," and the presence of an ignition source called "risk."

In comparison with the remainder of the Forest, fire hazard is not serious in the Mt. Hood Planning Unit. The relatively young forest has not had time to produce any large accumulation of ground fuel; nor does it contain the



abundance of snags which are characteristic of older timber stands. Also, much of the unit is at high elevation and has little vegetation to fuel a fire. The only major exception is a small area near Laurel Hill which has extremely hazardous fuel levels.

Fires burn on all types of land with various intensities and varying levels of damage. Fire hazard maps prepared for the Planning Unit indicate that most of the area is considered as moderate hazard. There are high and extreme areas, mostly in the Hood River County portion. Low hazard areas are found on the westside of the Unit.

Lightning and man's activity are the major sources of fire risk. Lightning is relatively insignificant as an ignition source in the Mt. Hood Planning Unit. Man-caused risk however, is very high, particularly due to the recreational orientation of the area's land use pattern. It is evident that the vast majority of fires are caused by outdoor recreationists.

Fortunately, most of these fires have been in readily accessible areas and caused little or no damage due to timely detection and suppression. The potential for serious resource damage is great however, as ever-increasing numbers of forest visitors frequent the trails and campsites of the back-country where limited access makes quick suppression difficult.

Fires due to timber harvesting and management operations account for most of the remainder of the fires each year, but they are usually small. Nonetheless, the potential for conflagration is great as the work is generally conducted in the midst of high hazard fuel. Slash burns are the most serious industrial ignition source. Annually, approximately 200 acres of logging slash on the Mt. Hood Planning Unit are treated by burning in order to prepare for reforestation and/or to reduce the fire hazard through fuel reduction. Over 75 percent is burned after machine or hand piling. The remaining 50 acres treated each year are broadcast burned under prescribed weather and fuel conditions in an effort to minimize the risk of fire escape.

Uncontrolled fire is a threat to not only the Forest, but also the homes and commercial buildings within the Planning Unit. Structures nestled in among the trees or immediately adjacent to the forest are especially vulnerable to destruction by wildfire. Conversely, structural fires in these areas pose a threat to the neighboring forest.

Rural fire departments are responsible for the protection of residential and commercial buildings within their districts. Currently, two rural fire departments, Hoodland and Parkdale, provide structural fire protection on the Mt. Hood Planning Unit. About 2700 private residences and 75 mercantile buildings are established within the Unit boundaries, but only 2400 homes and 55 businesses are protected. Government Camp, the ski resorts and several newer housing developments are not presently included in the Hoodland or Parkdale Protection Districts. Fire insurance rates are lower in areas protected by the two fire protection districts than unprotected areas such as Government Camp.

Fire suppression to protect land resources is the responsibility of two agencies. The U.S. Forest Service is charged with protecting the National Forest. The protection of state, private and other federal lands within the Planning Unit is the duty of the Oregon State Forestry Department. By cooperative agreement however, wildfire control is initiated by the closest available forces without regard to land ownership or suppression responsibility.

There is an extensive network of wildfire control facilities within the Planning Unit. Fire crews with water tankers are located at Zigzag, Government Camp, Long Prairie and along the East Fork of Hood River as well as at Lost Lake and Wahtum Lake outside the area. In order to make a rapid initial attack on fires in remote areas, a trained helitack crew is based at Parkdale. A similar crew is located south of the Planning Unit at Ripplebrook. Consequently, suppression forces can be at the scene of a wildfire within 30 minutes of its detection.

## VISUAL RESOURCES

Mt. Hood, the dominant geographic feature in the Planning Unit, is one of the most significant scenic landmarks in the state and has been proposed for recognition to the National Register of Natural Landmarks by the Forest Service. All agencies with jurisdiction over lands in the area have taken some steps toward the preservation of this scenic quality. The counties have adopted comprehensive plans which establish specific policies for developed areas and protect their attractive agricultural and forest lands from the encroachment of other uses. In addition, Clackamas County adopted a visual management overlay area in its plan which delineates an area where scenic quality should be protected. The State Forest Practices Act does not apply directly to scenic resources. National Forest and BLM lands are currently subject to a visual management system which treats visual values as a basic forest resource and provides greater scenic controls than in the forest areas under other ownerships.

A scenic quality map prepared for the Planning Unit identified 62 percent of the area as high or very high in scenic value due to the great variety in the landscape. The analysis tallied landscape features such as landform, rock form, vegetation and wildlife, using a scoring system. Visual values in the Planning Unit were found to be significantly higher than other areas in the Mt. Hood Forest.

The Forest Service began using the Visual Management System in April 1974. The standards are called visual quality objectives\* and are the product of an inventory which includes landscape variety class (physical features) and sensitivity levels (people's concern for scenic quality). The objectives are represented by five visual resource management types: Preservation, Retention, Partial Retention, Modification and Maximum Modification. Except for preservation, each describes a different degree of acceptable alteration of the natural landscape based on the importance of aesthetics. The degree of alteration is measured in terms of visual contrast with the surrounding landscape.

\*See Glossary



The existing objectives on Forest Service lands in the Planning Unit are described as follows:

Visual Quality Objective	Hood River District	Zigzag District	USFS Total	Percent
Preservation	8,752 ac.	5,341 ac.	14,093 ac.	11
Retention	3,480	18,446	21,962	17
Partial Retention	11,967	49,562	61,529	48
Modification & maximum modification	10,436	21,382	31,818	24
Total in Planning Unit	34,635	94,731	129,366	100%

### SOCIAL AND ECONOMIC CHARACTERISTICS

Cultural resources trace the evolution of land use and cultural traditions in the area and are a heritage which is of great meaning to many residents and visitors.

The Mt. Hood Planning Unit is strongly influenced by the region which surrounds it. Recreation and tourism, retail and commercial trade, agriculture and wood products, the basic components of the local economy, are all dependent on the "market area" surrounding the Planning Unit. Approximately one and one-half million people live within a two to three hour drive of the Mt. Hood area and exert a wide variety of demands upon its basic resources. Discussion of social and economic resources included in this section summarizes information from a special study of the Planning Unit (Hutchins, 1977) completed by the Forest Service.

#### CULTURAL RESOURCES

During the summer months, Indian groups traveled into the Cascades to hunt, fish and gather roots and berries. However, they probably did not inhabit the Mt. Hood area permanently due to the scarcity of game and generally rugged nature of the area as contrasted with the abundant fisheries of the Columbia River. Mt. Hood was deeply revered by these people and was the subject of many legends.

Chinookan speaking peoples: Wascos, The Dalles, Hood Rivers lived along the Columbia River north of the Planning Unit. The Molalla, a Sahaptan speaking peoples inhabited the area between Mt. Hood and Mt. Jefferson. Early settlers noted Indian groups fishing along the Salmon River. An Indian trail from the Hood River Valley to Willamette Falls crossed the Planning Unit in the vicinity of Lolo Pass.

Because of the apparent transient nature of aboriginal use, discoveries of permanent habitations are not expected. However, other evidence of use might be found along hunting and travel routes, fishing spots and berry fields if these areas could be pinpointed.

In October 1772, Vancouver's party noted "a very distant snowy high mountain" from a vantage point near the Willamette River and named it Mt. Hood after a famous British Naval Officer.

Lewis and Clark noted the "Mt. Hood of Vancouver" in their journals in late October 1805 from the Columbia River near Hood River, though they did not venture into the area. First records of caucasian use are vague accounts of Hudson's Bay trappers. Peter Skene Ogden explored close to Mt. Hood in 1824, apparently traversing a similar path to that followed later by Barlow and Palmer.

In mid 19th century, immigration trains to fertile Western Oregon valleys were blocked by imposing falls on the Columbia River at The Dalles where long waits and exorbitant prices were required for portage and raft service. In 1845, the party of Samuel K. Barlow from Independence, Missouri learned of the Indian trail which passed over the north face of the mountain and decided to find a route over the Cascades. In October 1845, the party struggled up over the south side of Mt. Hood to Summit Meadows where the imposing canyon of the Zigzag River, a point later to be known as Laurel Hill, blocked wagon passage. The party was forced to leave wagons and supplies at Summit Meadows and struggle by foot to Oregon City.

When the territorial government met in 1846, Barlow presented a plan to build a toll road over the route to serve future immigrants. It was approved and as soon as melting snows permitted, road crews cut grades, corduroyed swamps and built creek crossings over the route. The character of the road was rough to barely passable, and impassable in areas such as Laurel Hill where wagons were partially dismantled and slid down the hill, dragging logs as anchors or belayed by ropes. However, the route had a profound effect on immigration into western valleys and was operated as a toll road by a number of interests for about 70 years.

In 1919, the Highway Commission took over the route and modernized the road for automobile travel. In June 1925, a loop highway circling Mt. Hood was opened, providing better access to recreationists. Shortly after, funds were allocated for establishing campgrounds along the loop highway.

Present day settlements in the Mt. Hood Planning Unit are found primarily along the Old Barlow Road route. Government Camp, Rhododendron and Alder Creek all sprang up as a result of the Barlow Road. On the eastside of the Planning Unit, communities such as Parkdale and Hood River developed as a result of agriculture potential, nearby logging activities and the presence of the Columbia River.

Mt. Hood has been a popular recreation site since the 19th century. In the 1890s, bicycling to mountain resorts was popular. Cloud Cap Inn, established on the mountain's northeast side in 1889, served for a number of years as a climbing center and resort. Designed by William H. Widden, it shows strong influence of the American Shingle Style developed at that time by prominent eastern architects.

During the first two decades of winter sports, much of the activity occurred on the north side due to the railroad access through the Hood River Valley



to Parkdale. By 1917, recreation on the mountain's south side had become popular and in 1926, the road to Government Camp opened to winter travel. The winter road access from Portland made the south side the center of winter sports activity. Toboggan slides and a ski area were established near Government Camp; resorts and hotels in the vicinity accommodated skiers, climbers and sightseers.

The Forest Service began constructing trails in 1905, mainly for fire access, though many were used for recreational purposes. In 1934, the Works Progress Administration (WPA), began to construct the Timberline Trail. The following year, construction on Timberline Lodge began and was completed in 1937. Over the years, Timberline Lodge has gained recognition for its setting, historic and cultural values. It is constructed of massive timbers and stone masonry not found in today's construction and stands as a monument to western craftsmanship.

The Mt. Hood Planning Unit was also used for the resources it provided. Furs, lumber, water for irrigation, grazing and in the Hood River Valley, fertile soils for pasture, farming and orchards.

Farming in the Hood River Valley began in the 1870s. The first canneries were built between 1910 and 1920. Migrant labor became an essential part of the agricultural economy during and following World War II.

Minority groups have had a significant role at shaping the history and heritage of the Mt. Hood area. Immigrants helped to build the early railroads in the area. Japanese families began to farm in the Hood River Valley later when the canneries opened. Agricultural labor shortages during World War II were often met by contract crews of Mexican nationals. After the war, many Hispanic people became American citizens, settling throughout the west coast. Some have continued to work as migrant agricultural laborers. Today, most Native Americans remaining in the area adjacent to the Planning Unit, live in Cascade Locks and the Portland metropolitan area.

Historical and Archaeological Sites. The Mt. Hood Planning Unit is rich in known cultural resource sites (see Map 13 for location of sites). Other cultural sites which are still unknown could also be significant. The most recent listing of the National Register of Historic Places (Federal Register, Vol. 42, No. 137 - July 18, 1977) has been consulted in compliance with Section 106 of the National Historic Preservation Act of 1966. Four register sites are located in the Planning Unit: Timberline Lodge, Cloud Cap Inn, Rock Corral and a segment of the Barlow Road (near Wemme).

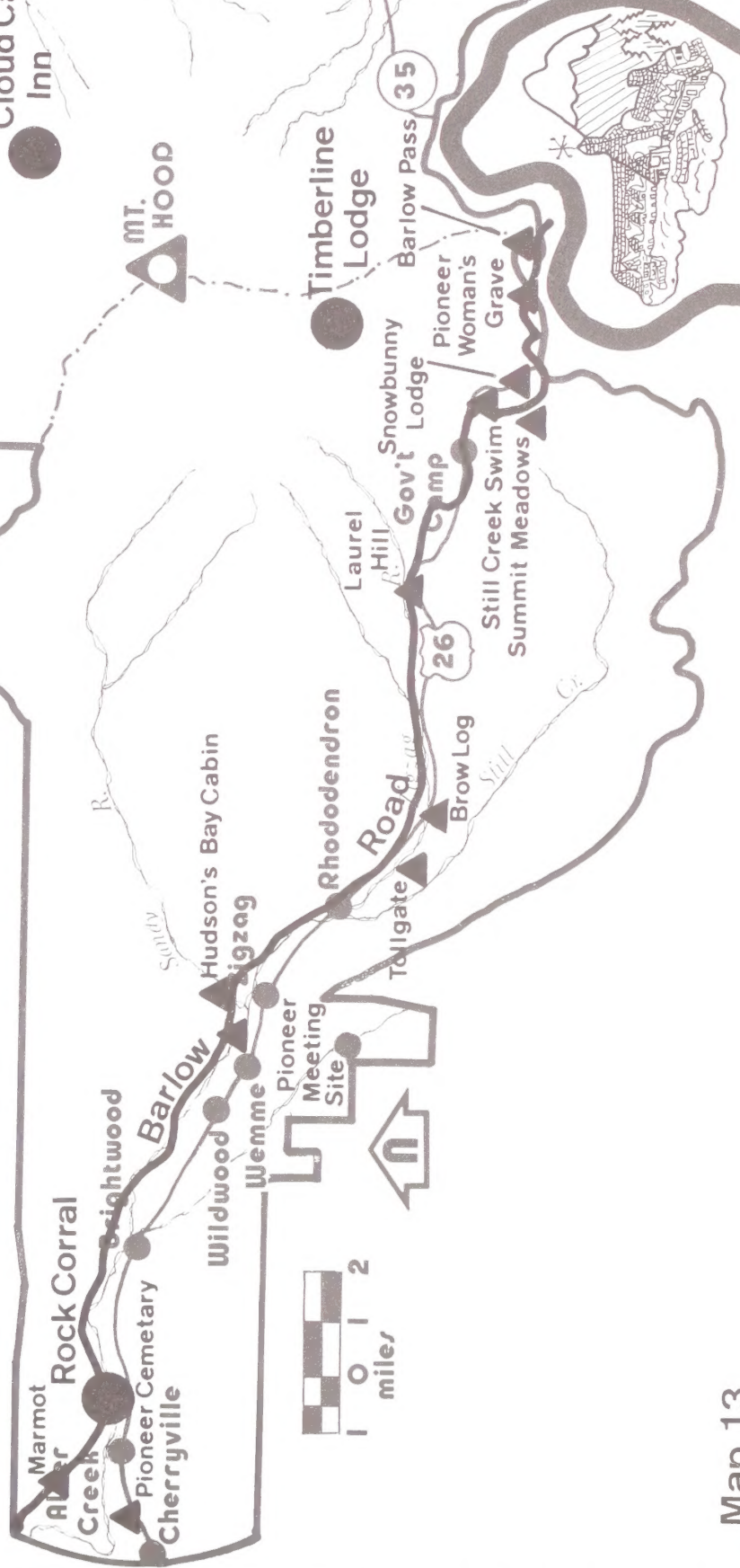
Many additional sites have been identified, most are related to the Barlow Road or WPA activity in the area and will be investigated to determine their historic significance (see Exhibit N in the Appendix for information on selected sites). It is expected that when an on-the-ground survey is conducted, numerous other sites will be added to the list.

The State Historic Preservation Officer concurs with the description of the resource and discussion of potential impacts in this document.

# mt. hood planning unit

## HISTORIC SITES

- ▲ Historic Site
- National Register Site
- Barlow Road Unusual Interest Area
- Segment Oregon Trail Route, National Historic Trail System







Cherryville area



Alder Creek area

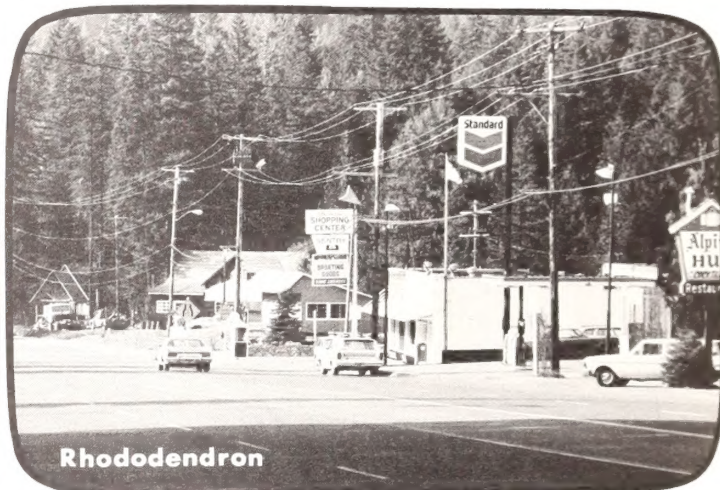
## COMMUNITIES



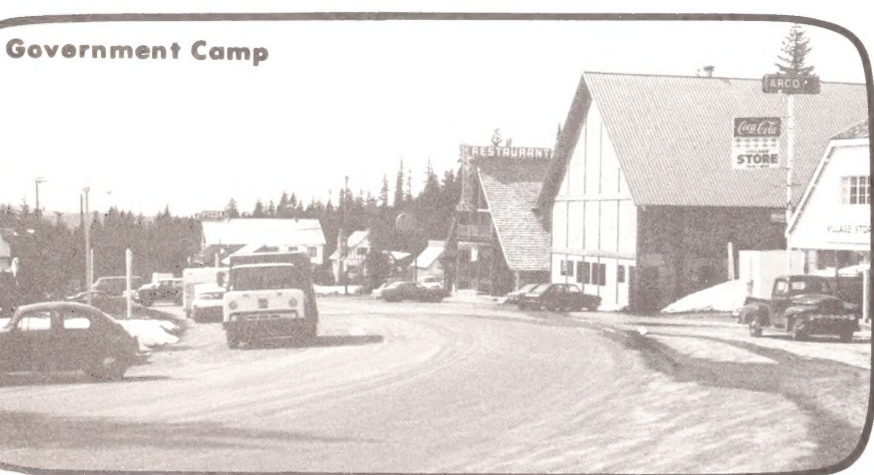
Wemme



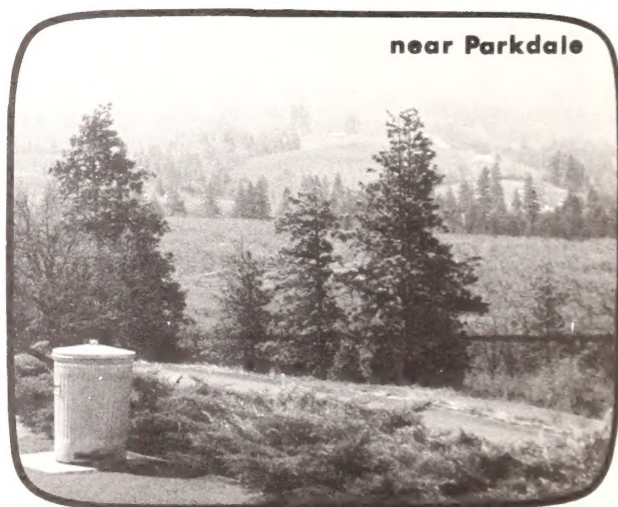
Zigzag



Rhododendron



Government Camp



near Parkdale



## LOCAL COMMUNITIES



Cherryville and Alder Creek. This community introduces the eastward bound traveler to the mountain area and is characterized by rural farm and small wood lot development, dense stands of mixed forested vegetation and scenic vistas of Mt. Hood, and other major ridgetops. There are 520 residents, a small percentage of which are seasonal. Land use policies for the area include protecting the scenic qualities of the highway and restricting development within the Alder Creek watershed. Water supply to the Alder Creek area is provided by a private water company. Disposal of sewage is handled by septic tanks and drain-fields throughout the community.





Sleepy Hollow and Brightwood. An area which is rural/residential in character and shows signs of strip highway development. Brightwood, first called Salmon due to its proximity to the Salmon River, was established in 1891. The community from Sleepy Hollow to Brightwood now has 1000-1100 residents (seasonal and year round) and land available for future expansion where floodplain and steep hillsides can be avoided. Already indicated is the need for a compact service and business center south of the Sandy River bridge, a local park and future elementary school, more price diversified housing and improved intersections at each end of Old Highway 26. A solid waste site to serve the entire recreational corridor is also recommended for this area. Six different private water systems presently serve parts of the community. With the exception of Timberline Rim's privately owned treatment facility, all sewage disposal in the area is subsurface. A new fire station to house one engine was recently constructed near Cook's Motel.





Wildwood, Wemne and Welches. This community area was established in the early 1900s. Wemne was named for a man instrumental in getting state ownership of the Barlow Road. Welches was an early homesteader in the area. These communities are oriented toward either the highway or the golf course in the Welches area. Mixed housing and commercial facilities extend along the highway, hampering traffic carrying capacity and presenting a discordant appearance.

Welches and Government Camp have been designated by county plans as the two primary tourist/recreation centers in the Planning Unit. The population in the Welches area is approximately 1600, of which 40-50 percent is seasonal. The area around the golf course is projected for resort development of a medium density character. A recreational/residential trail system along the Salmon River and shuttle bus service to winter ski areas have also been suggested. The designated commercial centers at Wemne and the Welches junction have room for additional development. Development of housing and business facilities in clusters that are buffered and oriented away from the highway will be encouraged. Water service to the area is provided by more than ten different systems. Sewage disposal is generally subsurface, with the exception of two private treatment systems serving Bowman's Resort and adjacent homes.





Zigzag, Lolo Pass and Faubion. The junction of Lolo Pass Road and Highway 26 is the entry point to the National Forest and serves as a fairly compact community core. The Zigzag District Ranger Station, several commercial facilities, Hoodland Park Recreation Hall, fire station and Welches Elementary School are all located here. There are 750 permanent and seasonal residents. Policies for land use include improving the intersection to reduce congestion, developing an integrated recreation community center south of Highway 26, and protecting the scenic qualities of the Lolo Pass and Salmon River roadways. Plantings to upgrade the appearance and reduce highway impacts upon the adjacent community have been encouraged. Water is presently furnished to residents by more than ten different systems. All sewerage disposal is by subsurface means, except the Zigzag Village treatment plant.





Rhododendron. Rhododendron developed as a popular resort on the Mt. Hood Highway in the early 20th century. It is a residential/recreational community along Highway 26 surrounded by the National Forest. Business facilities front both sides of the highway. There are 320 residents, a high percentage of which are seasonal. A safe means of crossing Highway 26 and low density development characterized by individual residences surrounded by native vegetation are high priorities within the community. A development pattern to better clarify community land use policy was recently adopted. Water service to Rhododendron originates on Henry Creek and is controlled by the Rhododendron Summer Homes Association. Lady Creek provides water for the summer homes in the Zigzag area above Rhododendron on lands leased from the Forest Service. All sewage disposal is handled by individual septic systems.





Government Camp. The Government Camp area was first used as a stopping place by pioneers and developed into a resort community in the late 19th century. Uniquely separated from the lower elevation communities, Government Camp is surrounded by the alpine setting of National Forest and derives most of its income from the winter recreation industry. Key winter sports areas include: Multorpor, Ski Bowl and Summit. Weekend parking and circulation problems are acute during the snow season. Future planning specifies resort type development in areas adjacent to ski facilities and the main business areas which front Old Highway 26. There is need for a community parking facility, a system of snow removal and storage, and a program for local fire protection. A loop road south of the highway is proposed to alleviate congestion problems associated with the overpass accessing Multorpor. Available services include a private water system and public sanitary treatment facility. An improved, expanded treatment plant was constructed recently. The present zoning is generally recreational/residential (R-R) which provides for up to four units per acre of suitable land. There are some 210 housing units within the private community, including 47 condominiums. Population is about 550 residents, almost three-quarters of which are seasonal.





Parkdale. Surrounded by orchards, the community of Parkdale was first established in 1910; it is located approximately  $1\frac{1}{2}$  miles west of Highway 35. Commercial facilities, elementary school, community hall and a large industrial plant managed by Diamond Fruit are concentrated here. Future community expansion would occur within the present sanitary district to minimize conflicts with adjacent agricultural uses. Population is approximately 300 which swells two-fold with influx of seasonal migrant labor in summer months. Central water and sewer services are available, while fire protection is provided by the Parkdale Fire District.



## DEMOGRAPHY

The population of the Planning Unit was estimated to be between 7060 and 7160 in 1975. Seasonal residents comprise approximately 57 percent of the total, the remaining 43 percent are permanent residents. Figure 13 describes the source for these population estimates. Between 1960 and 1970, Parkdale and Hood River lost population while the Clackamas County portion of the Planning Unit increased. However, from 1970 to 1975, all portions of the Planning Unit grew in population. During the next 20 years, a doubling or tripling of population in the Mt. Hood vicinity is anticipated, largely due to the growth of the Portland metropolitan area.

Most of the population of the Planning Unit is concentrated along Highways 26 and 35. Areas available for development already have densities approaching urban or suburban areas and will probably continue to increase in density because only 18 percent of the land area in the Planning Unit is in private ownership. The counties recognized this and both have established density standards and growth areas for the Mt. Hood communities in their County Comprehensive Plans.

There are heavy seasonal fluctuations in population which correspond to seasonal recreation and employment patterns. Population densities more than double during certain times of the year.

Figure 15 - YEAR ROUND POPULATION

	Total # 1960	Total # 1970	Est # 1975	% Change 1960-70	% Change 1970-75
Parkdale CCD	1323 <u>1/</u>	1140 <u>1/</u> (1670 Rpt by Beals)	1670 <u>2/</u>	-13.8	46.5
Mt. Hood CCD	2942 <u>1/</u>	3976 <u>1/</u>	5184 <u>3/</u> 4384 <u>2/</u>	35.1	30.4 10.1
Total CCDs	4265	5116-5646	6854-6044	19.9-32.4	34.0-17.4
Hood River Co	13595 <u>1/</u>	13187 <u>1/</u>	14300 <u>3/</u>	-1.6	8.4
Clackamas Co portion of the Planning Unit			2600 <u>2/</u> (2700 dvlpd by MH Interagency Planning Team)		
Hood River Co portion of the Planning Unit			420 <u>2/</u>		
Total Planning Unit			3020-3120		

Sources:

- 1/ U.S. Dept of Commerce, Bureau of the Census. 1972. General Social and Economical Characteristics, Oregon, 1970. U.S. Government Printing Office, Washington, D.C.
- 2/ Beals, Herbert K. June 11, 1975. Population Projections, Housing Needs and Capacity in the Mt. Hood Planning Unit. Columbia Region Association of Governments (CRAG). 24pp.
- 3/ Center of Population Research and Census. February 1976. State of Oregon Population Projections for Oregon and its Counties: 1975-2000. Portland State University, Portland, OR. 51pp.

Figure 16 - SEASONAL\* RESIDENT POPULATION (Mt. Hood Corridor Areas)

Mt. Hood Planning Unit	U.S. Census 1970	Estimated 1975
Clackamas Co portion	--	3800**
Hood River Co portion	--	240**
Total Study Area	--	4040

\* Not including day use or short term recreation population

\*\* Estimates developed by Mt. Hood Interagency Planning Team.

Source: Beals, Herbert K. 1975.

Figure 17

Community Area	Approximate 1975 Population (Seasonal & Year Round)
Cherryville to Alder Creek	520
Sleepy Hollow to Brightwood	1000-1100
Wildwood, Wenme, Welches	1600
Zigzag, Lolo Pass, Faubion	750
Rhododendron	320
Government Camp	550
Parkdale	300*
Total Community Areas	5040-5440
Total Planning Unit	7160

\*In addition, there are approximately 300 migrant laborers during the summer.

Source: Mt. Hood Interagency Planning Team estimates. The data indicates that about 70-76% of the seasonal and year round residents are located along this corridor.



Figure 18

Census Used	Estimated 1975			1980			1990			2000		
	Year Round	Seasonal	Total Yr Round & Seasonal	Year Round	Seasonal	Total Yr Round & Seasonal	Year Round	Seasonal	Total Yr Round & Seasonal	Year Round	Seasonal	Total Yr Round & Seasonal
Mt. Hood CCD	5134	--	--	6561	--	--	10018	--	--	12869	--	--
Parkdale CCD	1670	--	--	1920	--	--	2160	--	--	2400	--	--
Total	6804	--	--	8481	--	--	21178	--	--	15269	--	--
Percent Inc	--	--	--	24.6	--	--	43.6	--	--	25.4	--	--
Planning Unit												
Clackamas Co Portion	2600	3800	6400	4002	5843	9845	--	--	--	7580	11461	19311
Hood River Co Portion	420	240	660	480	274	754	--	--	--	756	431	1187
Total	3020	4040	7060	4482	6117	10599	--	--	--	8606	11892	20498
Percent Inc	--	--	--	48.4	51.4	50.1	--	--	--	92.0	94.4	93.4
Clackamas County	202900	--	--	233000	--	--	300800	--	--	383000	--	--
Hood River County	14500	--	--	14700	--	--	16300	--	--	17200	--	--
Total	217200	--	--	247700	--	--	317100	--	--	400200	--	--
Percent Inc	--	--	--	14.0	--	--	28.0	--	--	26.2	--	--
Oregon State	2292734	--	--	2496982	--	--	2835968	--	--	3020208	--	--
Percent Inc	--	--	--	8.9	--	--	13.6	--	--	6.5	--	--

SOURCES: Beals, Herbert K. 1975. Housing Needs and Capacity in the Mt. Hood Planning Unit. Columbia Region Association of Governments. 24 pp.

Center of Population Research and Census. February 1976. State of Oregon - Population Projections for Oregon and its Counties: 1975-2000. Portland State University. Portland, OR. 51 pp.

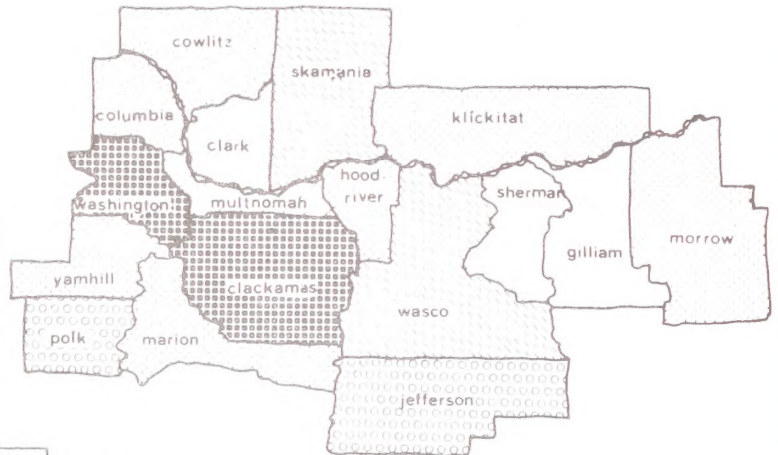
**Figure 19**

**PERCENT POPULATION CHANGE**



**1960-1970**

**1970-1980**



**1980-1990**



**1990-2000**

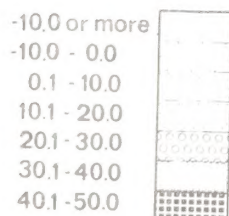




Figure 18

Census Used	Estimated 1975			1980			1990			2000		
	Year Round	Seasonal	Total Yr Round & Seasonal	Year Round	Seasonal	Total Yr Round & Seasonal	Year Round	Seasonal	Total Yr Round & Seasonal	Year Round	Seasonal	Total Yr Round & Seasonal
Mt. Hood CCD	5134	--	--	6561	--	--	10018	--	--	12869	--	--
Parkdale CCD	1670	--	--	1920	--	--	2160	--	--	2400	--	--
Total	6804	--	--	8481	--	--	21178	--	--	15269	--	--
Percent Inc	--	--	--	24.6	--	--	43.6	--	--	25.4	--	--
Planning Unit												
Clackamas Co Portion	2600	3800	6400	4002	5843	9845	--	--	--	7580	11461	19311
Hood River Co Portion	420	240	660	480	274	754	--	--	--	756	431	1187
Total	3020	4040	7060	4482	6117	10599	--	--	--	8606	11892	20498
Percent Inc	--	--	--	48.4	51.4	50.1	--	--	--	92.0	94.4	93.4
Clackamas County	202900	--	--	233000	--	--	300800	--	--	383000	--	--
Hood River County	14500	--	--	14700	--	--	16300	--	--	17200	--	--
Total	217200	--	--	247700	--	--	317100	--	--	400200	--	--
Percent Inc	--	--	--	14.0	--	--	28.0	--	--	26.2	--	--
Oregon State	2292734	--	--	2496982	--	--	2835968	--	--	3020208	--	--
Percent Inc	--	--	--	8.9	--	--	13.6	--	--	6.5	--	--

SOURCES: Beals, Herbert K. 1975. Housing Needs and Capacity in the Mt. Hood Planning Unit. Columbia Region Association of Governments. 24 pp.

Center of Population Research and Census. February 1976. State of Oregon - Population Projections for Oregon and its Counties: 1975-2000. Portland State University. Portland, OR. 51 pp.

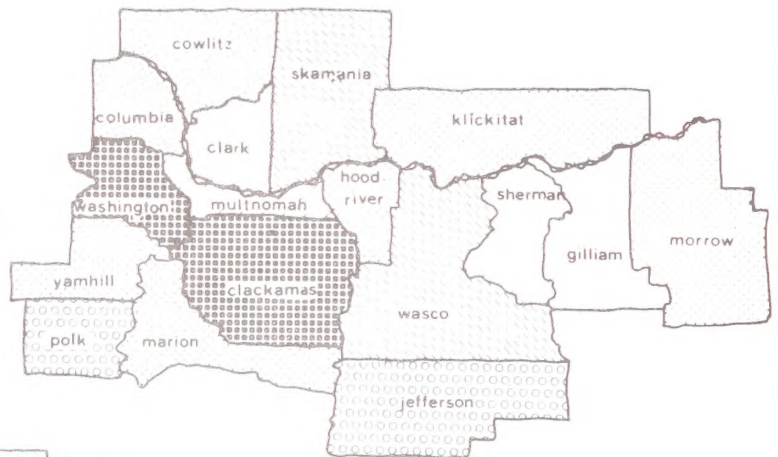
**Figure 19**

**PERCENT POPULATION CHANGE**



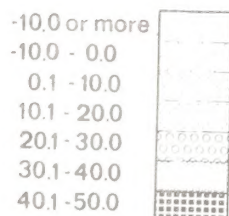
**1960-1970**

**1970-1980**



**1980-1990**

**1990-2000**





Age distribution in the Planning Unit indicates that residents include fewer young and young middle-aged people (aged 0-15 and 15-34, respectively) and a higher proportion of people 45 and over than the market area and state averages. This indicates that the Mt. Hood area is attracting a large proportion of older retired people. Sex distribution in the area is comparable to state averages.

Figure 20 - 1970 RESIDENT POPULATION

	Mt. Hood CCD	Hood River County	Clackamas County
By Sex: Male	49.5	49.5	49.5
Female	50.4	50.4	50.8
By Age: 0-17	32.2	34.1	36.2
18-24	8.1	7.6	9.1
25-44	22.2	21.4	24.9
45-64	22.8	25.2	20.8
65 and over	14.7	11.7	9.0
Median Age (years)	33.3	33.3	28.4
Median Age State (years)	29.0		

Source: Bureau of Government Research and Service. October 1972. Human Resources Data, 1970 - Hood River County. League of Oregon Cities, Salem, OR. 10pp.

U.S. Department of Commerce, Bureau of the Census. May 1972. Census Tracts, Portland, Oregon-Washington, SMSA-1970. Census of Population and Housing. U.S. Government Printing Office, Washington, D.C.

Minority populations are low in the Mt. Hood area. The Hood River County portion has the largest percentage of permanent residents from minority groups, most of which are Japanese/Americans. The number of minority residents in the Parkdale Census District is above the state average and in the Mt. Hood Census District, it is below the state average.

Detailed population breakdowns are not available for the individual census tracts in the Planning Unit; census figures do not identify how many Hispanic, Oriental and Native American persons live in the area. General breakdowns are available for the county and do provide some basis for comparison and discussion.

Information about permanent minority populations are probably inaccurate and too low. Noncitizens who are in the country illegally in particular, avoid population counts of residents and migrants. This affects Hood River County primarily which has more minority residents and migrants than Clackamas County's portion of the Planning Unit.

Inter and intra state migrant figures are particularly inaccurate due to the way the data is collected.

Figure 21 - MINORITY POPULATIONS

	Mt. Hood CCD	Clackamas Co	Parkdale CCD	Hood Rvr Co	State of Oregon
Total numbers	3976	166088	1140	13187	2091385
Total white	3920	164188	1083	12616	2032079
Percent white	98.6	98.9	95.0	95.7	97.2
Total black	8	372	0	36	26308
Percent black	0.2	0.2	0	0.3	1.2
Percent other	1.2	0.9	5.0	4.1	1.6
% All Minorities	1.4	1.1	5.0	4.4	2.8



Figure 22 - ESTIMATE OF NUMBER OF INTER AND INTRA STATE MIGRANTS IN MIDMONTH SURVEY

	Clackamas County			Hood River County		
	1970	1971	1972	1970	1971	1972
May	0	0	0	110	40	40
June	0	390	0	150	150	50
July	325	290	0	1145	1135	780
August	215	70	0	320	125	50
September	0	0	0	855	1465	1110
October	0	0	0	670	450	1790

Source: Kohl, Don C. (ed). 1976. Social Accounting for Oregon, 1976: Indicators of Depressed Socio-Economic Conditions. State Community Services Program, Dept of Human Resources, Salem, OR. 407pp.

## EDUCATION

Median school years completed by area residents is slightly below the state average. There are fewer high school graduates in the Clackamas County portion of the Planning Unit than in the county as a whole, but slightly more than Hood River County. The percentage of the residents enrolled in college is below the state average but this probably indicates that students leave the area to attend college, rather than a lower interest in higher education.

## EMPLOYMENT

Most of the people in the Planning Unit are employed as service workers, craftsmen, foremen, clerical workers and operatives (i.e. largely food processing related jobs). The greatest number of jobs in the Clackamas County portion of the area were for service workers and craftsmen; this probably reflects the importance of tourism and recreation on employment. In Hood River County, operatives and craftsmen were the largest occupational categories.

U. S. DEPARTMENT OF LABOR  
MANPOWER ADMINISTRATION  
RUN DATE - 11/03/72  
LAWRENCE BERKELEY LABORATORY

# MANPOWER PROFILE

BALANCE, COUNTY OF  
CLACKAMAS  
PEP AGENT AREA  
STATE OF OREGON

## SOCIAL AND ETHNIC CHARACTERISTICS

THE TOTAL POPULATION OF THE AREA IN APRIL 1970 WAS 166,088 WITH A RACIAL COMPOSITION OF WHITES, 164,173 (98.8 PERCENT); BLACKS, 434 (0.3 PERCENT); OTHER RACES, 1,481 (0.9 PERCENT). THE SPANISH AMERICAN ETHNIC GROUP (ALSO COUNTED PRIMARILY IN THE WHITE RACE, BUT INCLUDES SOME BLACKS AND SPANISH-AMERICANS 21.6 YEARS. SOME 98,316 (59.2 PERCENT OF THE TOTAL POPULATION) WERE IN THE PRIME WORKING AGE GROUP, 16 TO 64 YEARS OLD. PERSONS OVER 65 ACCOUNTED FOR 14,973 (9.0 PERCENT OF THE TOTAL POPULATION).

## AGE

ONE HALF OF THE MALE WHITE POPULATION WAS BELOW 28.1 YEARS OLD, COMPARED WITH 17.6 YEARS FOR MALE BLACKS, 19.7 YEARS FOR FEMALES IN OTHER RACES, AND 20.1 YEARS FOR MALE SPANISH-AMERICANS. THE RESPECTIVE MEDIAN AGES FOR FEMALES WERE--WHITES 29.1 YEARS, BLACK 18.7 YEARS, OTHER RACES 24.2 YEARS AND SPANISH-AMERICANS 21.6 YEARS. SOME 98,316 (59.2 PERCENT OF THE TOTAL POPULATION) WERE IN THE PRIME WORKING AGE GROUP, 16 TO 64 YEARS OLD. PERSONS OVER 65 ACCOUNTED FOR 14,973 (9.0 PERCENT OF THE TOTAL POPULATION).

## EMPLOYMENT AND UNEMPLOYMENT

THE CIVILIAN LABOR FORCE IN THIS AREA WAS 67,025 COMPRISED OF 66,362 (99.0 PERCENT) WHITES, 137 (0.2 PERCENT) BLACKS, 526 (0.8 PERCENT) OTHER RACES, AND 775 (1.2 PERCENT) SPANISH-AMERICANS. THE TOTAL LABOR FORCE PARTICIPATION RATE WAS 59.3 PERCENT.

CIVILIAN EMPLOYMENT IN THE AREA TOTALLED 62,994 WITH 62,387 (99.0 PERCENT) WHITES AT WORK, 137(0.2 PERCENT) BLACKS, 470 (0.7 PERCENT) OTHER RACES, AND 725 (1.1 PERCENT) SPANISH-AMERICANS. THE LARGEST NUMBER OF JOBS OCCURRED IN THE FOLLOWING FOUR MAJOR INDUSTRY DIVISIONS --

MANUFACTURING  
RETAIL TRADE  
CONSTRUCTION

FEDERAL, STATE AND LOCAL GOVERNMENTS EMPLOYED 9,138 PERSONS IN NONAGRICULTURAL JOBS, 14.5 PERCENT OF THE TOTAL EMPLOYED IN THE AREA.

THE OCCUPATIONAL GROUPS EMPLOYING THE LARGEST NUMBER OF PERSONS IN EACH RACIAL AND ETHNIC GROUP WERE --

	ALL RACES	WHITE	BLACK	OTHER RACES	SPANISH-AMERICAN
TOTAL EMPLOYED, NUMBER	62,994	62,387	137	470	725
HORIZONTAL PERCENT	100.0	99.0	0.2	0.7	1.1
VERTICAL PERCENT	100.0	100.0	100.0	100.0	100.0
WHITE COLLAR WORKERS	49.8*	50.0*	25.5*	37.4*	61.9*
BLUE COLLAR WORKERS	35.0*	35.1	34.3	34.5	31.7*
SERVICE WORKERS	11.4*	11.3*	40.1*	16.8*	14.9
FARM WORKERS	3.7	3.6	0.0	11.3	1.6

TOTAL EMPLOYMENT IN LOW PAY AND LOW STATUS OCCUPATIONS WAS 13.9 PERCENT FOR WHITES, 37.2 PERCENT FOR BLACKS, 20.4 PERCENT FOR OTHER RACES, AND 10.1 PERCENT FOR SPANISH-AMERICANS.

UNEMPLOYMENT TOTALLED 4,031 OR 6.0 PERCENT OF THE CIVILIAN LABOR FORCE. APRIL 1970 UNEMPLOYMENT RATES BY RACE/ETHNIC GROUPS WERE--WHITES, 6.0 PERCENT; BLACKS 0.0 PERCENT; OTHER RACES, 10.6 PERCENT; SPANISH-AMERICANS, 6.6 PERCENT. PERSONS OVER 16 YEARS OLD NOT IN THE ARMED FORCES, NOT AT WORK AND NOT LOOKING FOR WORK TOTALLED 46,149. OF THESE 3.3 PERCENT WERE IN INSTITUTIONS AND 10.2 PERCENT WERE ENROLLED IN SCHOOL. THERE WERE 4,362 PERSONS IN THE AREA BETWEEN 16-64 YEARS OLD WHO WERE DISABLED OR HANDICAPPED.



Table 1. Population by Sex and Minority Status

1970

Minority Status	Number		Percent distribution		Labor Force participation rate	
	Total	Female	Total	Female	Total	Female
1. Total	(1)	(2)	(3)	(4)	(5)	(6)
2. White	13,187	6,649	100.0	100.0	58.4	40.6
3. Black	12,616	6,397	95.7	96.2	58.8	41.2
4. American Indian	36	17	0.3	0.3	0	0
5. Oriental	112	50	0.8	0.8	NA	NA
6. Other Races	364	160	2.8	2.4	NA	NA
7. Spanish-American	59	25	0.4	0.4	1/ 48.8	1/ 25.8
8. Minority Group*	168	73	1.3	1.1	73.3	62.5
	739	325	5.6	4.9	53.8	33.2

1/ Includes American Indian and Oriental

Notes: NA = Not Available

\*Sum of Spanish American and all races except white. Some duplication possible since Spanish American may include nonwhite races as well as white.

Sum of individual items may not equal totals because of rounding.

Source: Census of Population 1970

Figure 25 - EMPLOYMENT BY OCCUPATIONAL CATEGORY, 1970 - LOCAL AREA

	Mt. Hood CCD		Hood River County	
Professional, technical & kindred	153	11%	436	10%
Management & administrative	207	15	491	11
Sales workers	39	6	229	5
Retail trade	46	3	-	
Clerical & kindred	112	3	503	11
Craftsmen, foremen	252	18	575	13
Operatives (except transport)	102	7	625	14
Transport Operatives	63	4	219	5
Laborers (except farm)	77	5	426	9
Farm workers	53	4	467	10
Service workers	255	18	550	12
Private household workers	5	1	63	2
Total Employed	1419	100%	4594	100%

Source: U.S. Department of Commerce, Bureau of the Census. 1972. General Social and Economic Characteristics - Oregon 1970. U.S. Government Printing Office, Washington, D.C. 293pp.

Traditionally, minority groups in the Hood River County portion of the area are employed in agriculture related jobs, particularly during the summer and early fall. Women experience a large fluctuation in the labor market because many work only in the fall when food processing employment is high. Most Japanese/American families in the area own farms. Hispanic residents generally work in food processing or agricultural jobs. Minority migrant workers are generally Hispanic and come to the area to harvest agricultural crops.

No specific breakdowns of minority employment are available for the Clackamas County portions of the Planning Unit. However, because the amount of agriculture jobs are limited, many of these residents are probably involved in more diverse occupations than in Hood River County.

Unemployment rates for the Mt. Hood area are well above the state average. This reflects the often seasonal nature of employment as well as the high proportion of retirees and children in the Planning Unit.

#### INCOME AND PUBLIC ASSISTANCE

Median incomes of all families in the Planning Unit are below the state average and there are indications of a higher incidence of poverty also. Public assistance rates are slightly above the state average in Hood River County and below the state average in Clackamas County.

Information on relative rates of income by race are available on a county basis, but not at the Census District level. Therefore, minority income patterns can only be discussed on a general basis.



Figure 26 - INCOME, 1969 - LOCAL AREA

	Mt. Hood CCD	Parkdale	Hood River County	State
Number of families	1059	--	--	-
Median income	8861	N/A	8412	9489
Mean income	10114	8052	9486	N/A
Families & unrelated individuals				
Median income	7705	N/A	7195	7575
Mean income	8829	7259	8308	8695
Income below poverty level Number families	146	N/A	420	N/A
Percent All Families	13.8	N/A	11.8	8.6

Source: U.S. Dept of Commerce, Bureau of the Census. 1973. Earning by Occupation and Education, 1970. U.S. Government Printing Office, Washington, D.C. 407pp.

## HEALTH

According to county health indicators, it appears that the general health in Clackamas County is below the state average and Hood River County is slightly above the state average. Even when related to income, this trend seems to hold true since the incidence of poverty in the two counties is similar.

## HOUSING

Housing patterns evidence the strong impact of seasonal residents and visitors upon the Planning Unit, particularly on the westside. Housing is discussed in the Land Use section.

## SOCIAL DISORGANIZATION

Crime, divorce and illegitimate birth rates are three indices of relative levels of social disorganization. People involved in these forms of social disorganization also frequently become involved in social service programs. Crime rates in both counties are below the state rates but Clackamas County's divorce rate is slightly higher than average. Generally, Clackamas and Hood River Counties have disorganization levels below the state rates.

## COMMUNITY SERVICES

Residents and visitors to the Planning Unit place demands on community services including water supply, waste and sewage disposal systems, schools and medical, police and fire protection.

Water. Water is provided from a number of sources including wells, springs and rivers; water availability is not a limiting factor on development in the Planning Unit due to the availability of groundwater. On the westside of Mt. Hood, there are about 40 registered private community water systems which provide service to over 1000 homes; the eastside has water services from the Crystal Springs District and Parkdale Water Company. Irrigation water is supplied to the farming areas in the Hood River Valley by the Middle Fork Irrigation District.

An inventory of reservoir sites in the drainage area indicates that there are no sites suitable for major impoundments in the area. Some small impoundment sites are available, but they are of very low quality.

Solid Waste. Existing solid waste facilities are small but adequate at present. However, as the population of the Mt. Hood area increases, a more suitable disposal method will have to be used such as transfer stations which are transferred and deposited in the county's central landfill site.

Sewage. Public sewage facilities are located at Government Camp and Parkdale with four smaller private systems in Brightwood, Welches and Lolo Pass area. The private systems for Timberline Rim, Bowman's Golf Course, Mt. Hood Golf Club Terrace and Zigzag Village all are the activated sludge type and relatively small. A study of these systems in the Clackamas County portion of the Planning Unit has been completed and is under review by the county to determine future sewer needs for anticipated development in this area. Future location of sewer and water systems will to a large extent, determine the focus of future housing and commercial development. A summary of the sewage study is included in Exhibit S.

Each of these facilities employ holding lagoons, spray irrigation or a combination of both to avoid effluent discharge into the receiving streams during the low flow summer months. The Timberline Rim and Zigzag Village facilities are operating at flows far below their design capacity, while the Mt. Hood Golf Club Terrace facility is operating at about half its design capacity.

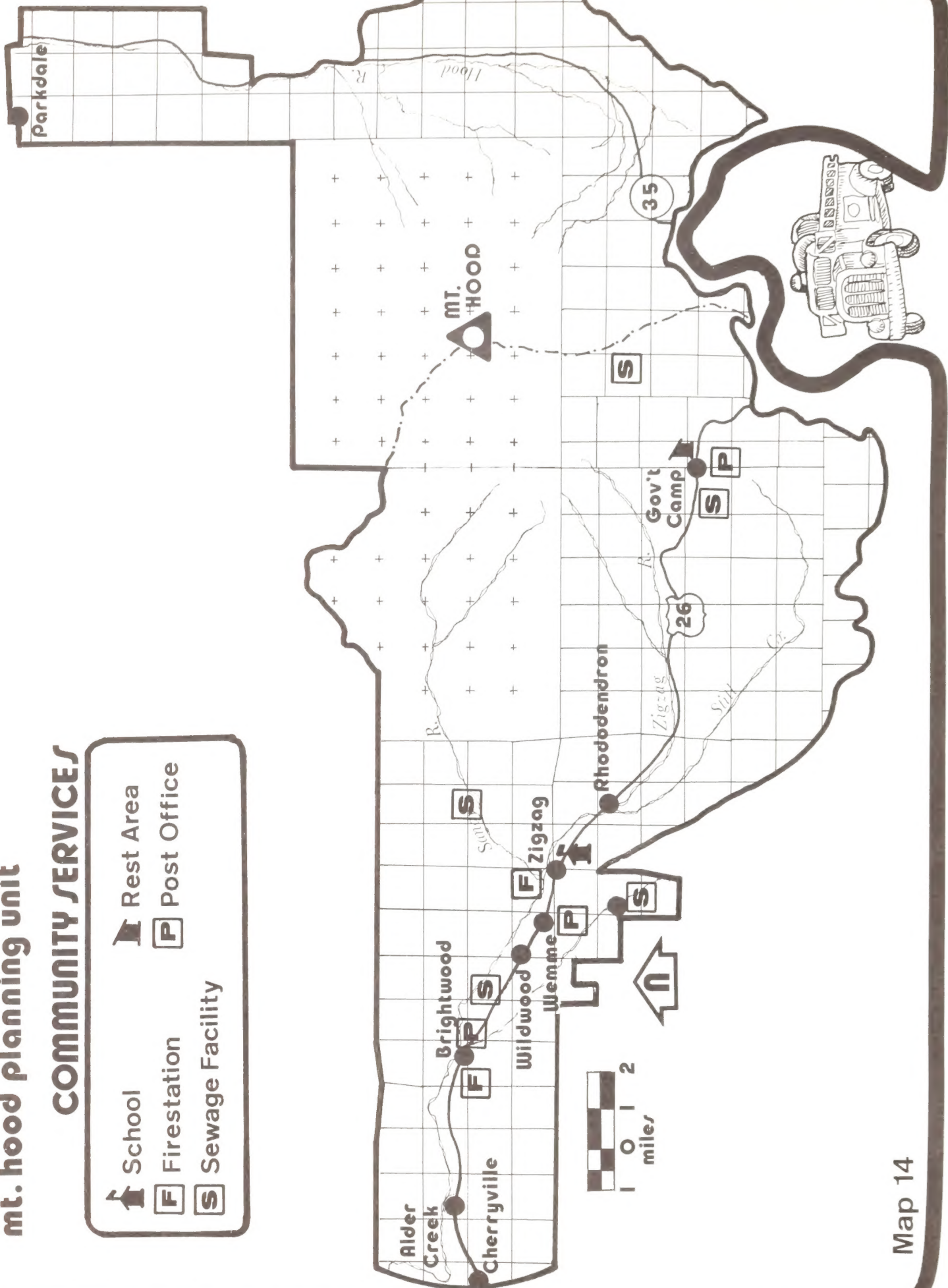
Recent tests by the Department of Environmental Quality have shown that the Mt. Hood Golf Club Terrace and Bowman's facilities seem to be meeting the effluent discharge criteria set by the operating permits. The Timberline Rim and Zigzag Village facilities have not been monitored because of their very low flows.



# mt. hood planning unit

## COMMUNITY SERVICES

	School		Rest Area
	Firestation		Post Office
	Sewage Facility		



The following table summarizes the design criteria and other pertinent data related with these facilities.

TABLE 27

EXISTING SEWAGE TREATMENT PLANTS

Plant	Population PE		Flow MGD		Receiving Stream	BOD/TSS Level	Remarks
	Design	1975	Design	1975			
Timberline Rim	1827	25*	0.250	4/ -	Sandy River	20/20S 2/ 30/20W 20/20S	There has been no discharge
Mt. Hood Golf Course	300	250*	0.30	0.18	Salmon River	30/30W3/	Flow meter may not be calibrated
Mt. Hood Golf Club Terrace	150	75*	0.15	0.007	Salmon River	20/20S3/ 30/30W	Serves approximately 22 homes
Zigzag Village	250	18*	0.10	-	Sandy River	No discharge 20/20W2/	There has been no discharge
Government Camp	350	350	0.225W	0.130S	Camp Cr.	10/10S 20/20W	
Timberline Lodge	1000	300	0.060	0.020	Salmon Riv	-	No discharge
Mt. Hood Meadows	375	300	0.040	0.020	E.F.Hood Riv	20/20	
Parkdale	1000	300	0.100	0.030	Trout Cr.	20/20	No discharge

\* Estimate and includes part time residents

1/ Indicates the permit requirement for effluent BOD and suspended solids.

2/ Discharge to holding pond June 1 to November 1 with no discharge to stream

3/ Irrigation of golf course June 1 to November 1 with no discharge to stream

4/ One 75,000 gpd activated sludge unit presently in operation

5/ Proposed capacity is 225,000 GPD

Schools. Existing elementary school sites include Parkdale Elementary which has limited room for expansion and Welches Elementary with additional expansion potential. High school facilities are located at Hood River and Sandy; the Junior High School is in Odell. There is additional enrollment capability in the Planning Unit.

Hospital, Police and Fire Services. The nearest hospitals are in Hood River and Gresham, fifteen miles or greater from the Planning Unit boundary. There is an emergency medical building at Government Camp, maintained by the Forest Service and two ambulances are also in the area on weekends and holidays during the ski season. Additional ambulance service is available from the communities outside the Planning Unit. A voluntary rescue team in Brightwood also can respond to medical emergencies.



Two deputy Sheriffs patrol primary and secondary roads and the Oregon State Police patrol main access roads.

Two rural fire districts provide structural fire protection to most of the area; Government Camp and the resorts provide their own fire protection. National Forest lands are protected from fire by the Forest Service and the State Forestry Department protects the other lands in the Planning Unit. There is an extensive network of wildfire control units which can reach a wildfire within 30 minutes of detection.

Other community services include the local road network and snow removal. The counties are responsible for upgrading and maintaining the local roads, snow removal and storage is a problem peculiar to the higher elevation snow areas above Zigzag.

### COMMUNITY IDENTITY

The high proportion of seasonal residents in the population of the Planning Unit, tourist/commercial character of the west approach along Highway 26 and industrial/agricultural related development in the Parkdale area, affect community identity in the Planning Unit. Clackamas County, for example, has established Government Camp and Welches as primary resort centers by their land use and density designations. A sampling of community values in the local area was not made but other studies give some information about general types of conflicts in values which could conceivably exist or develop in resort oriented communities.

In a study (England, 1975) carried out in conjunction with a draft environmental statement for ski area development near Provo, Utah, significant differences were identified in community values in resort and nonresort communities. As resorts or tourist oriented facilities develop, there are a number of changes which tend to occur which lessen feelings of community identity among permanent residents. Generally, there is an in-migration of young people and older people leave the area. Periods of residence shorten and population growth is rapid; there are fewer married couples, more divorces, smaller families, more liberal values, more small businesses, slightly higher but unevenly distributed incomes and the quality of life is viewed as decreasing.

Sociologists believe that these changes in community character are significant because when varying groups with different values are brought together, the potential for conflict is higher.

## ECONOMIC ACTIVITIES

Economic activities within the Planning Unit fall into four general categories: recreation and tourism, retail/commercial trade, agriculture and wood products.

### RECREATION AND TOURISM

Estimates of the total number of people visiting or passing through the Mt. Hood area for recreational or tourism purposes in 1975 were made in a study (Hobson and Leland, 1976) based on State Department of Transportation data. Though the methods used were not highly refined, the results are useful. The study estimated that 71 percent of all tourists entering the area in 1975 went to a destination in the Planning Unit. Approximately 55 percent of these "destination tourists" were in the area only for the day. Of the overnight visitors, 54 percent were campers, 26 percent stayed in vacation homes and 20 percent used overnight resort or motel facilities. Approximately 40 percent of all tourism occurred during June, July and August. The study also estimated that the total recreation/tourism expenditures derived from persons entering the Planning Unit were \$18,000,000 in 1975 and that approximately 61 percent of that amount was spent in the Planning Unit.

The three major resort establishments in the Planning Unit account for about 40 percent of total commercial activity. Weather conditions are by far the biggest factor determining seasonal and yearly demand and therefore, revenue and employment. Sunshine and snow conditions determine yearly trends in alpine skiing demand. Pronounced seasonal and weekly fluctuation is typical of winter sports demand due to seasonal availability, vacation and holiday schedules and recreation traditions. In late spring, snow levels are not a factor in determining demand.

Demand for summer recreation facilities on the west approach (primarily Bowman's Resort) is also subject to seasonal fluctuations with highest use in the summer. Seasonal activity switches from the mountain and its south and east slopes in the winter to the west slope and approach in the summer. Timberline Lodge maintains a reasonably constant level of activity by serving both summer and winter demand. Innovative marketing efforts by the major resorts to offer a diversity of activities and services has tended to reduce dependence on weather conditions and seasonal variations in demand. Nonrecreational uses such as conventions and business meetings are becoming increasingly more significant.

Demand for summer and winter recreation facilities has increased in recent years. Increases in the use and revenue have been higher for summer recreation than winter activities. The major resorts indicate increases from 5-12 percent per year. High occupancy rates and capacity use of facilities during peaks indicate demand may exceed supply or be approaching an excess situation. Many factors such as marketing ingenuity, price, weather and suitability of existing facilities affect rates of use.



Tourism and recreation are large and variable aspects of the local economy. Ski and resort facilities generate much of the commercial activity. Most of the revenue accruing to the smaller business is the result of recreation demand on Mt. Hood, but Bowman's Resort and recreational subdivision activity also contribute to small business revenues. Weather for the most part, determines seasonal activity for winter recreation. Summer recreation is experiencing moderate and steady growth and tends to be more stable from year to year. Recent changes in minimum wage laws and overtime compensation will dramatically affect labor force size and consequently, many aspects of the area such as services and housing.

Recreation and resort business is quite labor intensive. About 45 percent of total revenue in this industry is spent on wages. Average wages tend to be low and based on hourly rates. Hourly wages range from \$2-\$5 per hour and annualized salaries up to \$20,000. The Mt. Hood National Forest provides a range of salaries to its 105 permanent employees.

Most workers are young and are of diversified nontechnical skills. Many workers change occupations each year, having both a summer job and a winter job. Frequently, firms use the same person in one capacity in the winter (i.e. lift operator) and another in the summer (carpenter). Wages are too low to allow workers to live on seasonal income. Frequently, several members in a family household work.

From the employer's point of view, labor turnover is the biggest problem. Unemployment compensation and training costs both increase as turnover increases. Factors not related to labor productivity often determine hiring. Those with housing are often given preference by employers. Bowman's Resort for example, draws heavily on members in summer recreation households to fill its high labor demand in summer.

Because the labor force is versatile, it is hard to specify skill levels. Using rough estimates, it is estimated that resorts require about 35 percent unskilled, 40 percent skilled and 25 percent administrative or professional employees (estimates provided by Mid-Columbia Economic Development District).

Short term dwelling patterns of seasonal workers limit potential rents to landlords. Consequently, less is invested in rental housing, creating seasonal housing shortages and lower quality housing. The same problem applies to other facilities used by the temporary labor force. Parkdale currently has a critical housing shortage and cannot meet winter demand by ski area employees.

#### RETAIL AND COMMERCIAL TRADE

Most businesses in the Planning Unit are small operations which often provide a number of services. Weather conditions and low permanent demand limit business size. In 1975 there were 110 places of employment, 104 of which were commercial businesses. These businesses employed over 1000 people and were located primarily in Government Camp or along Highway 26 in Clackamas County; only six percent of the businesses were in the Hood River County portion of the Planning Unit. The Leland study estimates that

total gross sales in the Planning Unit were over \$6,000,000 for retail commercial facilities.

Over 90 percent of the commercial establishments have gross sales under \$50,000 and employ fewer than six people. Insufficient local demand limits further development and expansion of most small businesses, particularly in the service and professional areas. An estimated 20 percent of total demand for commercial products and services is generated by the resident population. Competitively superior markets in Portland capture most local demand for durable goods and staples. Businesses designed mainly for tourism/recreation services are generally much larger than other businesses.

Creation of additional employment in commercial businesses generates additional sales and multiplies the economic impact of payments to the new employees. This effect is relatively low in commercial activity.

Clackamas County considers existing zones for commercial use adequate to accommodate additional commercial development. Except for privately owned land, the supply of recreation facilities on Mt. Hood is subject to control by the Forest Service through permits to private businesses.

#### AGRICULTURE

Agricultural activity is located almost entirely in the upper Hood River Valley. There are 2500 acres of apple and pear orchards and 600 additional acres of pasture land in this portion of the Planning Unit. Clackamas County also includes 800 acres of agricultural land in the Mt. Hood area. Average farm size is small, generally less than 50 acres.

Apple and pear crops are processed outside the Planning Unit in Parkdale and Odell and marketed regionally and nationally. Prices are set according to regional and national supply and demand factors. At the national level, demand is rather stable, increasing moderately over time with some price fluctuations.

Revenue from orchard crops accounts for virtually all farm income within the Planning Unit. Gross revenue is dependent upon externally determined prices and local annual yield rates. Revenue from production of apples, winter pears, Bartlett pears and livestock in 1974 was estimated to be \$2,713,000. Weather conditions create fluctuations in annual production and revenue. Past price has little effect on production decisions; a typical situation for high initial investment, lagged return crops. In some cases, when yield or price is sufficiently low, orchardists will not harvest crops unless costs can be recovered. Investments for large, diversified farms follow a cyclical pattern where it exceeds depreciation in years following high revenues and is less than depreciation in years following poor harvests.

There are basically four types of demand for farm labor; permanent, culturing, seasonal harvesting and seasonal processing. Diamond Fruit has a plant in Parkdale that employs approximately 180 people in processing and cold



storage operations from mid-September to December. The demand is reduced to ten employees in the spring and four in the summer.

Harvest labor demand varies each season according to yield rates and weather conditions during harvest. A typical year would require a temporary labor force with an August-September peak. Pruning and thinning requires a smaller work force which starts in May and June with a permanent labor force estimated to be 25. Workers can shift from pruning crews to harvesting, to working in the processing and cold storage plants. There are also cross linkages between these labor groups and winter employment in recreation activities on Mt. Hood.

About \$1,302,000 was paid in 1974 to an estimated 950 workers in all agricultural activity. Orchard crops are somewhat labor intensive. Wages paid on a piecemeal basis (except permanent workers) convert to a moderate hourly wage rate of \$2.11-\$2.50. Spending patterns of seasonal workers vary. Local spending takes place from June to December, peaking in September.

Agriculture costs are cyclical from the economic standpoint. Most seasonal stresses on public facilities and housing are now provided for. One external factor, state enforcement of the migrant housing code, is increasing production costs without increasing return. Subsequent grower adjustments in production have not been made, but over the long run, the net effect will be increased costs and increased farm size and possibly, consolidation of migrant housing.

#### WOOD PRODUCTS

Timber management contributes significantly to the local and regional economy. Approximately 74 percent of 116,600 acres of the 158,000 total acres in the Planning Unit are forested.

Currently, about 78,880 acres or 68 percent of these forest lands are suitable and available for commercial harvest\*. About 57,570 acres are administered by the Mt. Hood National Forest and the Bureau of Land Management.

The biologic yield 1/ on available forest lands is 35,300 MBF (thousand board feet) per year. Potential annual yield based on present management constraints on public lands would be about 30,900 MBF.2/

- 1/ Biological yield is the maximum yield based on the land's productivity and our present technology.
- 2/ These yields are estimated based on managed yield tables and should not be construed as being accurate control yields for any point in time. The yields are based on a Scribner Decimal C rule, the actual control harvest levels on National Forests is calculated in cubic feet.

\*See Glossary

This Planning Unit provides about 14 percent of the harvest on the Mt. Hood National Forest.

The current timber harvest provides jobs which in turn, affect payrolls. Not all employment related to wood products is located in the Planning Unit. Wood processing facilities are located outside the Mt. Hood area in the Hood River Valley and in Clackamas County.

Employment in logging operations within the Planning Unit is seasonal. The length of the season varies according to weather conditions, elevation and access, but generally runs six to nine months. Year round logging is possible in portions of Clackamas County. Workers are generally considered semi-skilled and skilled with relatively high wages during season. No doubt, workers seek employment in winter recreation operations, but the labor flow between the two is not known. Most find that unemployment compensation provides the highest income during the winter months. Workers tend to be permanent residents with stable housing needs.

Average wages are relatively high at \$9350 per man year. About 47 percent of revenue in the industry is spent on wages.

Indirect, or secondary economic impacts occur at least at a regional level as these mills purchase other materials to support their operations. Also, as the mills sell their wood products, the wages derived by profits affect other sectors of the economy, covering activities such as wholesale and retail trade and personal services. In this manner, the economic impact spreads to the local doctor, grocery store, barber shop and laundromat. These indirect impacts resulting from timber harvested within the Planning Unit are more difficult to identify. Available estimates indicate that about 136 jobs per year from indirect impacts.

Other economic benefits include the annual returns to the Federal Treasury returned to the counties as described in the land use alternatives. This financial support offsets tax collection.

#### ASSESSED PROPERTY VALUATION

Figure 28 shows the assessed property valuation, average millage rates and 1975 property taxes for private properties within the boundaries of the Mt. Hood Planning Area. As indicated, total assessed property value is \$91,617,000 with taxes of \$1,614,200. The average assessed value per acre for residential property is \$2,863. However, valuations on residential land range dramatically from a low of under \$1000 per acre to a high of over \$20,000 per acre. Generally, building lots from  $\frac{1}{4}$ - $\frac{1}{2}$  acre are assessed between approximately \$7000-\$12,000 per acre, although the range is much greater. Lots in large recreational subdivisions such as Timberline Rim are appraised from \$2900-\$8600 with a median of \$7500.



ASSESSED VALUATION AND PROPERTY TAXES FOR PRIVATE LANDS,  
FORESTS, AND IMPROVEMENTS IN THE MT. HOOD PLANNING AREA, 1975  
(\$000)

	Assessed Valuation			Average Millage Rate <u>1/</u>	Property Taxes
	Land	Timber	Improvements		
Clackamas County	\$37,938	\$2,352	\$39,138	\$17.09	\$1,357.3
Hood River County	N/A	N/A	N/A	21.08	<u>256.9</u>
Total	N/A	N/A	N/A	\$17.62	\$1,614.2
Source: Clackamas and Hood River County Tax Assessors Office.					

1/ Rate per \$1,000 of valuation.



## Planning Framework





## PLANNING FRAMEWORK

Framework planning policies must be established to assure cooperative resolution of issues important to citizens and agencies concerned with the Mt. Hood Planning Unit.

County, state and federal agencies have participated in the Mt. Hood inter-agency planning process to reach a coordinated general management direction for the area. Specific direction for private, county and state lands in the Planning Unit is provided by adopted County Comprehensive Plans and zoning and other implementing ordinances. The Mt. Hood Planning Unit Plan adopted following this Final Environmental Statement will be the chief planning document used by the Forest Service and BLM and will be consistent with the adopted County Comprehensive Plans. Following adoption of the plan for National Forest and BLM lands, a final Plan Summary document will be prepared which draws together the adopted plans of all the jurisdictions in the Mt. Hood Planning Unit.

The following general direction statements apply to all lands within the Planning Unit and to all the management alternatives considered in this document. They should be considered as the general policy framework for all decisions and actions related to use of the land and resources of the Planning Unit.

- Growth. The general policies to be adopted by participating agencies with respect to growth of the recreation population on public lands and resident populations on private lands are that: (1) the amount of growth as well as its distribution, will be compatible with the area's character and environmental limitations of the resource base, (2) the rate of growth as well as its distribution, will be adequately served by public facilities to support growth as it occurs, (3) growth will be coordinated between the public and private land management sectors and (4) allowable density standards will be reviewed periodically to ensure that the provisions in (1), (2) and (3) will be properly implemented.
- General Development Criteria. Public or private development which would cause violation of the Clean Air Act or the Federal Water Pollution Control Act or other applicable federal or state laws or local ordinances will not be permitted.

Development will not occur on land capable of sustaining accepted farm practices.

No development will occur that would exceed the capacity of existing systems for power and water supply, waste water collection and treatment, solid waste disposal or transportation, unless such systems are planned for expansion and have adequate financing to support operating and expansion as necessary to meet the demands of new development without violation of applicable federal or state laws or local ordinances.



Intensification of development in existing communities and other developed areas is favored over use of existing agricultural lands, wild areas, woodlands, isolated inholdings of private land, and other undeveloped areas for new development.

Major industrial or commercial development should occur only where there is adequate housing available within a reasonable distance or it is provided for all employees in the operation of the development.

No development will occur on wetlands\* such as marshes, swamps and bogs.

Flood hazard areas shall be maintained as natural drainageways and for scenic and recreational purposes. Use of fill material which would inhibit flood stream flows and endanger other properties would not be permitted. Existing permanent structures in floodplain areas should eventually be phased out or relocated.

Persons making any portion of the landscape less permeable or impermeable may be required to hold or store runoff water or otherwise control runoff from such lands so that it does not substantially affect or damage natural waterways or adjacent properties.

To the extent possible, upland watersheds will be maintained for maximum natural water retention.

Utilities, in locating utility lines, will be encouraged to provide multiple use of necessary utility rights-of-way.

All new major residential developments will include open space areas sufficient to provide appropriate recreational opportunities for the prospective residents of the proposed development.

- Development Performance. All major development proposals within the Planning Unit including roads, public recreation facilities, geothermal exploration or development, housing projects and community facilities, will observe high performance site and engineering design principles and practices, be compatible with the natural amenities and character of the mountain setting. They will prepare findings for public review (neighborhood groups, local design committees, etc.) to the extent that:

1. The development will be designed to retain the quality of natural features such as ponds, streams and wetlands.
2. The location of natural features and the site's topography have been respected in the design and siting of all physical im-

\*See Glossary

3. The development will not substantially reduce the natural capacity of any watercourse, thereby increasing the magnitude and volume of runoff or flooding at other locations.

4. The soil and subsoil conditions are suitable for construction; site preparation and drainages are designed to prevent erosion and environmentally damaging surface runoff.

5. The development will minimize offensive noise, vibration, smoke, dust and other particulate matter, odorous matter, fumes, water pollution and other objectionable influences subject to state and federal laws and local ordinances.

6. Proposed developments will be located on the sites most suitable for that use, considering alternative locations and sites.

7. The development is in compliance with and conforms to all other aspects of the final, approved Management Plan and local Comprehensive Plans.

- Significant Project Review. All project proposals regarded as significant by the agency required to approve the project will undergo interagency technical review in order to provide advice and recommendations to the decision-making bodies.
- Public Expenditures. Capital costs of all public improvement necessary for the mountain area's development should be determined for each project. Individuals and groups benefiting from the specific public project should be identified.
- Trespass. Permission must be secured from property owners before any public use of private properties.
- ORV Policy. Off road vehicle (ORV) use of private land is specifically prohibited without the owner's permission in a Clackamas County ordinance. All federal land management agencies were instructed to establish ORV policy plans by Executive Order 11644. The Mt. Hood National Forest adopted a Forestwide policy for use of ORVs in December 1976. It includes designation of closures and areas available for use as well as use restrictions. A copy of this plan is available at Forest Service offices. The BLM is also considering development of some type of ORV plan.
- Critical Area Management. Wetlands, floodplains and steep slopes are considered environmentally critical areas and unsuitable for most forms of land development. Destruction of such resources does not mean just the loss of some "aesthetic" environmental value or benefit but also loss to the social and economic welfare of the community.

Destruction or disturbance of these areas will affect the community by either (1) creating hazards such as flooding and land slippage;



(2) destroying important public resources such as water supplies and water quality of lakes and rivers; or (3) wasting important productive lands and renewable resources.

- Streamway Management. Streamways and river corridors will be protected. Development will be limited to allow for the natural movement of water within designated control areas, as determined by the county cooperating public agencies.

Relocation of stream channels and bank protection projects will be limited to emergency measures for purposes of protecting existing structures. Bank protection will not be used to stabilize unstable soil formations for the purpose of constructing or maintaining undeveloped building sites.

- Wildlife. Activities will be carried out in a manner that will provide for the permanent maintenance of habitat types (including old growth and snag habitat) for native wildlife species now occurring in the Planning Unit. Wildlife populations will be monitored to avoid an extreme overpopulation on one hand and elimination of species on the other.
- Mineral Management. The objectives are to integrate development and use of mineral resources with use and conservation of all forest resources to the fullest extent possible under the laws governing mineral disposal. All proposed projects on federal lands will be reviewed through an environmental analysis report. When compatible with other resources, Forest Service, BLM and county permits may be issued for commercial development of common mineral materials not subject to location under mining laws.
- Grazing. Livestock grazing on National Forest lands will be limited to allotments in the Long Prairie area on the Hood River Ranger District. There are no grazing allotments on BLM lands. Intermittent grazing related to recreational use is not restricted to specific areas of Forest Service and BLM lands. Available forage and water quality standards will be the principal determinant for number of animals allowed.
- Air Quality. Air quality levels will be maintained through DEQ air quality standards, land use policies and activities consistent with these standards and further research and monitoring of air quality conditions. Refer to the discussion of impacts under each of the alternatives.
- Noise. Developed and undeveloped areas will be protected from significant increases in noise levels by DEQ regulations.
- Water Quality. All activities will be designed to prevent degradation of water quality below the established State of Oregon Water Quality Standards as stated in Chapter 340 of the Oregon Administrative Rules

for the Sandy River Basin. These are described in the DEQ Statewide Water Quality Management Plan.

#### LAND USE AND SOCIAL/ECONOMIC CHARACTERISTICS

The primary land use and economic activities in the Planning Unit: agriculture, timber management and recreation are derived from the area's natural resources. Other uses such as housing, commercial development and transportation are directly related to these three primary uses.

Land ownership patterns reflect the traditional patterns of use in the Mt. Hood Area. The lower elevation areas with the best agricultural, forest and developable lands are largely in private, county and BLM ownership. Most small private ownerships and developed lands are concentrated along Highway 26. Planning direction for the private, county and state lands in the Planning Unit has been established by recently adopted county comprehensive plans.

- Water Quantity. Management practices will be directed toward maintaining water quantity within normal levels. Water allocation will be controlled by the State Water Resources Department. They will monitor and enforce minimum streamflow standards.
- Domestic Watersheds. County comprehensive plans will be adhered to in the management of the Crystal Springs and Parkhill Springs watersheds. Proposed and existing domestic watersheds also include the Upper Little Sandy, Alder Creek and Lady Creek, all of which occur on National Forest lands and will be managed to maintain adequate water supplies for the adjacent communities.
- Cultural Resources. Cultural resources will be sought and located. Identified cultural resources and newly identified sites will be protected if evaluations indicate such preservation is desirable. On National Forest and BLM lands, sites which are discovered through land management activities will be protected until a thorough study is made.
- Geothermal. All geothermal exploration and development will follow the NEPA process on federal lands including assessment of offsite impacts. Activity and lease action on federal lands will be regulated as outlined in the alternatives and in the description of geothermal resources.
- Plan Revision and Review. The Mt. Hood Interagency Plan will undergo an interagency review at least every ten years following completion. Adjustments to the plan can be made through the adoption of plan amendments following agency and citizen review. County procedures govern plan amendments affecting private lands.



## LAND CATEGORIES

A common system of resource classification and related management criteria is needed to minimize variations between agencies within the Planning Unit. The following "Land Categories" are intended to provide such a reference and will apply to all alternatives.

### AREA I - ENVIRONMENTAL PROTECTION

#### CHARACTERISTICS

These areas are represented by fragile environmental conditions or unique plant and animal associations and have a high preservation value due to their scarcity and vulnerability. Marshes, floodplains and other areas of poor natural drainage which are included in this category provide for exclusive and varied types of wildlife habitat and play vital roles in protection and management of surface and groundwater resources.



#### GENERAL POLICY STATEMENT

Area managed to avoid hazard to people and property and to protect unique biological areas from public abuse.

#### RESOURCES AND ACTIVITIES

Scenic. Meet the scenic quality objective of retention\* on federal lands.

Fish and Wildlife. Retain characteristics necessary to keep existing species diversity.

Watershed. Avoid disrupting hydrologic processes or degradation of water quality. Protect existing water yield levels.

Timber. Timber removal will be permitted if downstream improvements, streambanks, public safety and scenic values are protected. On National Forest and BLM lands, the timber will be placed in an unregulated timber category and will not be calculated as part of the allowable annual harvest. Any timber removal on National Forest lands will conform to the Regional Fish Habitat Management Policy.

Minerals. No permits shall be issued to remove common varieties of mineral materials not locatable under mining laws.

\*See Glossary

Recreation Development. Additional permanent structures not permitted. However, temporary recreation structures such as campgrounds and similar recreational development for summer use may be permitted when compatible with the area.

Transportation. Trails will be provided to facilitate protection of special biological areas. Roads will be provided only for crossing floodplain areas.

Motor Vehicles. Off road vehicles will be limited to designated areas and routes.

Fire Management. Limited fire protection provided. Fuels management will include prescribed fuel treatments designed to reduce the hazards permitted in activity areas and protect natural processes within the area.

Ownership. Exchange or purchase of private lands or development rights in environmental protection areas by public agencies (state, county or federal) is recommended.

Floodplains. Floodplains will be maintained as natural drainageways. No permanent structures are permitted which would inhibit flood stream-flows or endanger other property.

Scenic forest, farm, outdoor recreation and other open space uses not requiring permanent structures are consistent uses within the floodplain. Existing structures within floodplains will eventually be phased out or relocated to lands outside of flood hazard areas with the exception of compatible seasonal use structures such as camping facilities on federal lands.

New development will maintain adequate setbacks from the 100 year floodplain on stream terraces consisting of unconsolidated soil material which is subject to rapid water erosion during periods of high stream or river runoff.

Materials which may be inundated should be of such strength and quality that they will not deteriorate; they should also be able to withstand water pressure or the high velocity of flowing water.

No impoundment of free flowing streams is permitted except at designated sites.

The National Flood Insurance Program (PL 90-448) and the Flood Disaster Protection Act of 1973 (PL 93-234) are available to compensate for property losses. Planned development, conservation easements and acquisition by public bodies should be considered as methods to protect floodplains.

The riparian environment\* will be protected in its natural condition based on detailed river management studies.

\*See Glossary



New commercial or industrial development should not be within 200 feet adjacent to the Salmon River, Zigzag River, Sandy River and East Fork of Hood River.

Wetlands. Activities considered compatible include: (1) conservation of soils, vegetation, water and wildlife; (2) low intensity outdoor recreation which is dispersed and directed; (3) research and educational workshops on a request and permission basis and (4) on Forest Service and BLM lands, utility easements and low standard roads, but only on peripheral areas and where alternative alignments are impractical. Activities considered incompatible include construction, drainage, filling, damming, excavation, grading and removal of vegetation.

Development permitted on bordering lands should maintain the same runoff coefficient and erosion equilibrium as if they were undeveloped. Pier construction, elevated pedestrian boardwalks, sediment catch basins, semi-impervious surfacing, understructure parking, bridging of natural drainageways and retention of vegetation in areas not intended for improvement are applicable methods of site design.

Tax deferrals and elimination of special utilities assessments for private wetland owners can be used as techniques for fair compensation. However, further tax relief incentives and guidelines for maintenance and long term management are needed.

Public agency acquisition and management of private wetlands is felt to be too costly and impractical in most circumstances, but will be a consideration in cases of large ownership parcels or abutting private and public ownerships.

Cooperative planning and development of individual properties encompassing or bordering wetlands is encouraged and will be an important factor in weighing requests for project approval within attendant watersheds.

More precise characterization of known wetland areas and assessment of long term management needs and strategies should be undertaken during plan implementation. This could include better definition of the values associated with these areas as special biological/botanical communities and monitoring of impacts created by peripheral urbanization.

## AREA 2 - WILDERNESS AND WILDERNESS STUDY

### DESCRIPTION

This includes the presently classified Mt. Hood Wilderness as well as areas designated for formal wilderness study. The area is high elevation, mountain terrain which is unroaded and undeveloped. Soils, vegetation, geology and climate vary significantly.

## GENERAL POLICY STATEMENT

Existing Wilderness will be managed to meet the requirements of the Wilderness Act of 1964 and Secretary of Agriculture Regulations. Wilderness Study Areas will be managed to protect this character (i.e. allowing no new nonconforming uses, improvements or activities) until a decision is made regarding wilderness suitability.



## RESOURCES AND ACTIVITIES

Scenic. Preserve\* natural character.

Fish and Wildlife. Habitat changes to follow natural succession.

Timber. Tree removal not permitted.

Minerals. Current mining laws for wilderness apply in the areas designated for Wilderness Study. General mining laws will not apply to wilderness included in the 1964 Act after December 31, 1983.

Recreation Development Sites. No new facilities.

Transportation Facilities. No roads permitted. Provide low density trail system.

Motor Vehicles. No motorized use in Wilderness Areas. Wilderness Study Areas will be subject to the conditions in the Mt. Hood Forest ORV Plan.

Snow Sports. No motorized use in Wilderness Areas. Wilderness Study Areas will be subject to the conditions in the Mt. Hood Forest ORV Plan.

Fire Management. Fire suppression will be planned. However, suppression methods will be limited to the techniques and equipment which least alter the landscape or disturb the land surface.

Utility Corridors. Not permitted.

Other Ownerships. Recommend exchange or acquisition of county and private lands within area to federal ownership.

\*See Glossary under Visual Quality Objectives



## AREA 3 - UNROADED RECREATION

### DESCRIPTION

These areas are high elevation, lower producing timber sites, visually diverse and generally not accessible by roads. Soils, steep slopes and geology restrict development and intensive timber management.

### GENERAL POLICY STATEMENT

Manage the area for dispersed unroaded recreation, maintaining near natural conditions, permitting only those activities compatible with its character. Timber harvest would not be planned.

### RESOURCES AND ACTIVITIES

Scenic. The retention quality objective will apply to foreground\* and middleground\* areas viewed from roads and trails. The partial retention standard will apply to other areas.



Fish and Wildlife. Habitat changes to follow natural succession

Watershed. Protect existing water quality and quantity.

Timber. The purpose of timber harvest will be to retain the primitive character of the area, meet scenic objectives and control forest fuel buildup. Timber on BLM and National Forest lands will be placed in an unregulated\* timber category and not be part of calculated allowable annual harvest.

Minerals. No permits will be issued to remove common varieties of mineral materials not locatable under mining laws.

Recreation Development. Additional trails and trail camps will be permitted.

#### Transportation.

Roads. Those necessary to serve recreation facilities will be provided.

Trails. Provide additional trails for public use and enjoyment.

Helispots. Provide helispots\* as determined by preattack plan.

Motor Vehicles. Will be confined to routes designated by individual owners or agencies.

Snow Sports. Motorized snow machines permitted in designated areas. Other snow activities are permitted throughout the area.

\*See Glossary

Fire Management. Provide fuelbreaks through controlled burning and removal of fuels. Fuelbreak construction will only be done with proved techniques. Fire management and control facilities as directed by the Cooperative State and Federal Fire Plan.

Other Ownership. Private ownership will be considered candidate for exchange or acquisition by public agencies.

#### AREA 4 - DEVELOPED RECREATION

##### DESCRIPTION

Areas generally on public land suited for skiing due to slope, snow retention, elevation and aspect, and which generally fit existing or recommended ski areas. Other areas are sites suited for uses such as developed campgrounds and golf courses and are characterized by gentle slopes and good accessibility. Most of this area has not been available for timber harvest.

##### GENERAL POLICY STATEMENT

Areas will be used for developed recreation facilities including auto campgrounds, ski areas, visitor centers and golf courses.

##### RESOURCES AND ACTIVITIES

Scenic. On federal lands, site improvements in foreground will meet modification objective and foreground/middleground viewed from site and primary travel routes will meet partial retention objective.



Fish and Wildlife. Managed to maintain species diversity outside principal use area.

Watershed. All facilities will be designed to protect existing water quality and quantity. Sewage will be subsurface on suitable lands or treated to maintain water quality standards.

Timber. Timber on BLM and National Forest lands will be placed in an unregulated category and not be part of calculated allowable annual harvest. Harvest will occur only to the extent necessary in site development within the management area or for public safety, insect and disease control or meeting scenic objectives.

Minerals. Developed recreation sites will be withdrawn from mineral entry.

Recreation Development. Developed sites will include necessary waste disposal, water, service roads and power. Environmental carrying capacity will determine maximum permitted use level.

Transportation. Roads and trails will be designed to accommodate developed recreation use.



Overnight Housing. On private lands, overnight accommodations associated with Developed Recreation areas would be provided in Planned Resort areas. Refer to description on page 129.

The use of federal land for overnight housing may be considered only after it has been demonstrated that (1) it is necessary for the use and enjoyment of the developed recreational facilities, (2) suitable private land is not available to reasonably meet the public need and (3) it fits within the overall objective of providing a variety of recreational opportunities to the public in the Mt. Hood Recreation Area.

When overnight housing on federal land is considered appropriate, it will be limited to that needed to serve the public using developed recreational facilities.

Motor Vehicles. Limited to designated routes.

Snow Sports. Motorized use, cross country and downhill skiing; snow play permitted in designated areas.

Fire Management. Maintain low fuels levels adjacent to developments. Provide fire protection to buildings within the area through a rural fire department.

Ownerships. Consideration of exchange where advantageous to improve management of the developed area.

#### AREA 5 - ROADED RECREATION

##### DESCRIPTION

National Forest and BLM lands which are capable of sustained production of timber and have high scenic or watershed conservation values. Much of the roaded recreation is on steep ground. The areas by their setting are significant for retention of a high quality visual and recreational experience.

##### GENERAL POLICY STATEMENT

Areas will be managed for timber production and to retain or partially retain landscape character and scenic quality while maintaining watershed quality. Recreational facilities will be permitted and could include roads, car camps, trails and trail camps.

##### RESOURCES AND ACTIVITIES

Scenic. Character retention\* for foreground from recreationally sensitive roads and trails and areas of unique scenic variety. Partial retention\* of character in middleground and background as seen from primary viewing location.



\*See Glossary

Fish and Wildlife. Deer and elk forage will be maintained or increased through timber management. Maintain fishery habitat in lakes and streams through adherence to streamside management policies.\* Harvesting will not be permitted adjacent to wetlands\* (e.g. bogs, marshes and swamps). Width of the impact zone will be determined by onsite investigation. Provision will be made for existing and future snag habitat on National Forest lands by adherence to regional snag policies and the Forest Service Dead and Defective Tree Management Plan. Management policies on federal lands will allow for sustaining snag habitat and plans to dedicate live trees in timber stands to become future snags. Whips should be left in harvest areas.

Fire Management. Fire management activities will be in accordance with the current fire plan and in conjunction with cooperative efforts from state fire agencies. To reduce the potential rate of fire spread to a moderate or lower level, an active fuel management program will be pursued through timber harvest, prescribed burning and disposal of logging slash. Opportunities to develop and maintain shaded fuel-breaks and fire facilities (e.g. pump chances, fire camps and heli-spots) will be identified through preattack planning. An active prevention program, including public education efforts, will be used to reduce the potential man-caused fire risk and keep it at a minimum level. Under certain conditions, fire may be used as a management tool.

Ownership. Encourage consolidation of ownership patterns where necessary to retain the scenic character of the area.

Watershed. Protect existing water quality and quantity. Sewage will be subsurface on suitable lands consistent with state standards.

Timber. Timber management will be accomplished through methods designed to meet water and scenic quality standards. When necessary, log haul activity on forest roads will be coordinated to reduce conflicts with recreational use.

Minerals. Rockpits and stockpiles will not be located in the foreground unless they can be screened from direct view and meet visual and water quality constraints. Meet reclamation requirements of land management agency, State Department of Minerals and Geology and the counties.

Recreation Development. Maintain and expand existing car camps within the Planning Unit. Increase camps available for overnight and day use where suitable based on environmental capacity of the area and demonstrated need.

\*See Glossary



### Transportation

Roads. Narrow, single lane roads with turnouts will be used. Other low standard roads will be constructed as required for management.

Trails. Provide new low standard hiking trails and horse trails.

Helispots. Provide as needed and meet scenic quality standards.

Motor Vehicles. Trail bikes will be limited to roads and designated trails. Four wheel drive and all terrain vehicles will be limited to routes designated by the Forest Service and Bureau of Land Management. Motor vehicle use will not be permitted on the Pacific Crest Trail system.

Snow Sports. On public lands, no limitations except motorized use will be confined to designated areas.

## AREA 6 - GENERAL FOREST

### DESCRIPTION

These are generally high producing forest lands under federal, state, county and private ownership which, due to slopes, stable soils and geologic conditions, are manageable for a variety of resource activities. They receive large amounts of precipitation and contribute to high water yields. Productivity is variable with site indices\* ranging from 100-130. These areas are moderate to low in visual variation and are suitable for development.

### GENERAL POLICY STATEMENT

Areas to be managed for a variety of resource activities including intensive timber management.

### RESOURCES AND ACTIVITIES

Scenic. National Forest and BLM lands will be managed to meet modification of maximum modification visual quality objectives.\*

On state and private lands, visual protection will be encouraged. In Clackamas County, areas have been identified in the Mt. Hood corridor (lower Highway 26) where scenic values should be given special consideration in timber harvest. However, neither of the counties or State Forestry have established administrative controls which protect visual values directly.

Fish and Wildlife. Timber harvesting will provide different age classes of Douglas-fir (or other plantation tree species) habitat



types. Timber management will maintain snag habitat on federal lands. Fish habitat will be maintained under cooperative streamside management policy.

Watershed. Protect existing water quality and quantity.

Agriculture. Accepted farm practices are permitted on private lands.

Timber. Timber will be managed to retain high productivity of sites. All timber management activities on private and nonfederal lands will be done in conformance with the Oregon Forest Practices Act, State Planning Goals and Guidelines and County Comprehensive Plans.

Minerals. Permits will be required to remove common varieties of mineral materials not locatable under mining laws.

Recreation Development. Developments will be compatible with forest management, (e.g. hunting camps, day use facilities).

Transportation. Roads will be designed to be low impact, efficient for logging and safe for log haul and public travel.

Motor Vehicles. Confined to roads or designated routes on public lands.

Fire Management. Fire management activities will be in accordance with the current fire plan and in conjunction with cooperative efforts from state fire agencies. To reduce the potential rate of fire spread to a moderate or lower level, an active fuel management program will be pursued through timber harvest, prescribed burning and disposal of logging slash. Opportunities to develop and maintain fuel-breaks and fire facilities (e.g. pump chances, fire camps and heli-spots) will be identified through preattack planning. An active prevention program including public education efforts, will be used to reduce the potential man-caused fire risk and keep it at a minimum level. Under certain conditions, fire may be used as a management tool.

Ownership. Encourage exchange of lands where necessary to improve public land management.

Housing. On private lands, the minimum acreage permitted for one dwelling unit and accessory uses is 20 or 40 acres depending upon ownership and site conditions. Lands which currently fall below the minimum standard are exempted from this rule but the property will not be divided further.

## AREA 7 - FARM

### DESCRIPTION

Areas now under cultivation or suitable for farm crops based on soil type, slope and frost-free season or elevation. They are generally suited for development with a timber suitability factor of moderate to noncommercial.



## GENERAL POLICY STATEMENT

Agricultural land will be preserved and maintained for farm use through exclusive farm use zoning pursuant to ORS, Chapter 215.

## RESOURCES AND ACTIVITIES

Housing. The minimum lot size shall be 20 acres. All housing within the agricultural areas shall be accessory to farm use including a principal residence and other housing needed to operate farm uses.



Public Facilities. Extension of services such as sewer and water supplies will be designed and constructed to meet the needs of farm use and nonfarm use established under ORS 215.213.

Services that need to pass through agricultural lands will not be connected with any use that is not allowed under ORS 215.203 and 215.213 and assessments shall be for only the needs of the farm unit.

Other Activities. Forest and extractive activities are consistent with the resources production direction of this land use definition. All extractive uses would meet the requirements of the Department of Geology and the Mineral Industries.

Other space uses compatible with farm usage are consistent with this land use classification.

A building setback and/or buffer\* zone of a minimum of 50 feet (determined by county) will be established between farm land and residential land. The buffer will be provided and maintained on land owned by the property owner introducing the new use.

## AREA 3 - HOUSING

### DESCRIPTION

Areas suited for development due to soils, slope, geologic stability or serviceability. Generally, these lands are suited for timber production or management, developed recreation and in some cases, agriculture. Sites are variable in visual variety, ranging from low to high based on natural setting and prior development.

\*See Glossary

## AREA 8A - RURAL RESIDENTIAL HOUSING

### GENERAL POLICY STATEMENT

This area provides for farm and forest uses as well as very low density housing.

### RESOURCES AND ACTIVITIES

Housing. Density within this area will be five acres or more per unit with a minimum of one acre suitable for sub-surface disposal. Planned unit development or cluster housing will be allowed.



Other Activities. Farm, forest and recreational activities are compatible uses. Public water supply will be required on the eastside of the Planning Unit and individual wells for domestic purposes will be permitted on the westside.

## AREA 8B - LOW DENSITY/RECREATION HOUSING

### GENERAL POLICY STATEMENT

This area provides for a variety of housing types and density including seasonal or permanent residences.

### RESOURCES AND ACTIVITIES

Housing. Density within this area will be a minimum of one suitable acre or more per unit without sanitary sewers. With sanitary sewerage, the density will be no more than four units per suitable acre. Planned unit development\* or cluster housing\* will be encouraged or required for large developments.



Other Activities. Commercial, farm and forest uses are not compatible with low density residential. A buffer area will be provided and maintained on the lands being developed for residences. Thinning of vegetation will be permitted for fire protection and public safety.



## AREA 3C - PLANNED RESORT HOUSING

### GENERAL POLICY STATEMENT

This area provides for the highest density residential use and encourages resort oriented development and overnight accommodations.

### RESOURCES AND ACTIVITIES

Housing. Housing density in this area will range from four to eight units per acre or the equivalent in terms of floor area, depending upon the local comprehensive plan and the specific community involved (see Map 16 and Figure 29).

Other Activities. General forest and farm activities are not compatible with planned resort developments. A buffer zone will be provided and maintained on lands being developed for residences. Thinning of vegetative material will be permitted for fire protection and safety. Recreation related development will be encouraged.

Public Facilities. Sanitary sewers, adequate water supply and fire protection facilities will be required.



## AREA 9 - COMMERCIAL

### DESCRIPTION

Suitability characteristics are generally consistent with the housing category and established or proposed use patterns.

### GENERAL POLICY STATEMENT

This area will provide retail sales and services to residents and visitors within the Planning Unit. Existing standards relative to design, landscaping, parking and clustering of commercial facilities on a designated center basis are to be rigidly enforced. In general, these include: (1) new development will be of integrated and harmonious design, together with adequate and properly arranged traffic, parking facilities and landscaping; (2) new development



will enhance and protect the scenic roadway character of Highway 26 by observing deep setbacks, retaining native vegetation and trees and minimizing the number and scale of signs; (3) existing commercial facilities will be encouraged to upgrade and cooperate with new developments in providing adequate parking, safe access, coordinated landscaping and more functional service for the highway public and resident community.

#### RESOURCES AND ACTIVITIES

Services. Fire protection, adequate water supply and means for sewage disposal are required.

Standards. Standards related to design, landscaping, parking and clustering of commercial facilities on a designated center basis are listed in respective county plans. No changes are currently proposed and these standards will apply throughout the Planning Unit.

#### AREA 10 - INDUSTRIAL

##### DESCRIPTION

Suitability characteristics are generally consistent with the housing category and established or proposed use patterns.

##### GENERAL POLICY STATEMENT

Areas for industrial use of Planning Unit resources.

##### RESOURCES AND ACTIVITIES

Services. Adequate fire protection, waste disposal and water supply will be required.

Standards. State Industrial Performance Standards for air quality (emission levels and odor), noise levels and water quality.





## AREA 11 - SPECIAL SITES

### DESCRIPTION AND GENERAL POLICY STATEMENT

Areas for general public services to the community including schools, sewer and water plants, fire stations, county, state and federal maintenance facilities, ranger stations and electrical substations.

Sites of unique value or special purpose which warrant individual consideration. Development proposals within this category will be highly regulated and subject to visual, air, water and noise performance standards. Unique sites and features will be protected.



### RESOURCES AND ACTIVITIES

1. Geothermal exploration shall be limited to suitable areas. Exploration would be permitted for locating geothermal sources for heating and electrical generation in suitable areas. Development of physical plants for electrical generation would be restricted from specific areas. Visual, air and noise standards of the classified land use will apply. Suitability for surface development based on onsite and offsite impacts will be reviewed in environmental analysis reports or environmental statements on federal lands prior to approval of geothermal development.
2. The Bonneville Power Administration Utility Corridor has as its prime purpose, the maintenance and safe conduit of electrical energy. Any modification of the existing corridor will meet a scenic quality of partial retention by the technique of rehabilitation. <sup>1/</sup> The corridor through public land will be available for Christmas tree and huckleberry harvesting. Off road vehicle use will be permitted on existing service roads within the right-of-way. The corridor will be closed to vehicular use during the period when winter range is in use.
3. The general policies concerning solid waste disposal sites as stated in the Clackamas County, Mt. Hood Community Plan will apply to this area.

<sup>1/</sup> National Forest Landscape Management, Vol. 2, Ch 1, USDA Handbook 462.

4. Historical and archaeological sites or areas will continue to be inventoried and evaluated to assure compliance with the National Historic Preservation Act of 1966 and Executive Order 1593, May 13, 1971, "Protection and Enhancement of the Cultural Environment."

5. A summit area fire facility near Government Camp is recommended and would contain a heliport, temporary quarters for crews and a limited fire cache. The opportunity exists for this to be a cooperative interagency center composed of Government Camp Community Fire Station, the State Forestry Department and U.S. Forest Service sharing common facilities.

6. In the future, sites may be necessary to accommodate public facilities for federal conservation work programs. These sites will be located based on land suitability analysis and studied in either an environmental analysis report or an environmental statement.







**Proposed Plan**





## THE PROPOSED PLAN AND ALTERNATIVES

### INTRODUCTION

This section contains the proposed Mt. Hood Interagency Plan and two plan alternatives. Environmental impacts are described including assessment of the relationship of each plan to environmental capacity and growth management.

The Proposed Plan and Alternatives all reflect the current planning direction in Clackamas and Hood River Counties on private, county and state lands. This differs from the Draft Environmental Statement (DEIS) which included a series of alternatives for private lands.

The Proposed Plan and Alternatives are based on the interagency goals, limits imposed by individual capacities or constraint factors and recognition of distribution problems associated with land use arrangement and allocation of support facilities. Alternative A represents the result of continuing the present planning direction on National Forest and BLM lands. Alternative B is the no action alternative.

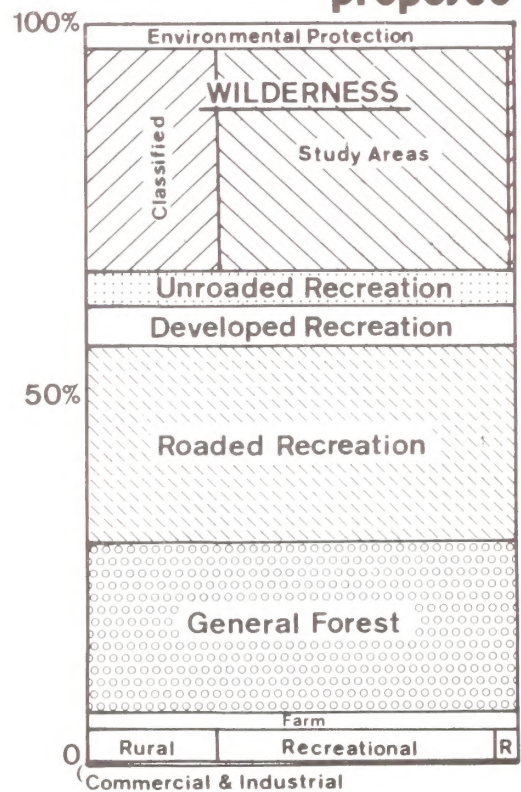
### PROPOSED PLAN

This Proposed Plan is oriented toward improving efficiency of land use in the area by concentrating development in areas already committed to that use, providing adequate support services, increasing agricultural and timber productivity and recreational opportunities, and maintaining the overall mountain area character. A balance of use is emphasized, minimizing external costs of development on the public. Thus, Highway 26 is proposed for improvement, but only to the extent required by the proposed use level.

Sewage collection systems will need to be improved and expanded within compact, defined service areas. The total range in the population provided for in the Proposed Plan is from 17,000-22,000.

<u>Area Designation</u>	<u>Acres</u>
Environmental Protection	4,700
Wilderness, Wilderness Study	48,000
Unroaded Recreation	7,700
Developed Recreation	8,600
Roaded Recreation	41,200
General Forest	36,100
Farm	3,900
Housing	7,500
Commercial, Industrial and Special Site	300
<b>TOTAL</b>	<b>158,000</b>

### ACREAGE ALLOCATION proposed





PROPOSED PLAN - NARRATIVE DESCRIPTION

## AGRICULTURE AND FORESTRY

- Both agriculture and forestry are emphasized. Designation for farm use will be given 3900 acres of which 3150 acres are in Hood River County.
- A variety of management programs will be encouraged on agricultural lands to maintain a high level of farm production. All lands currently in agricultural production will be retained in that use and necessary protective zoning measures will be adopted.
- A forest classification is given to 73,540 acres (i.e. General Forest and Roded Recreation). These areas will be available for full yield timber production with the exception of streamside corridors, unstable soil areas and wetland buffers.
- Specific scenic quality standards and wildlife habitat diversity objectives will be met on National Forest and BLM lands. Some reduction in timber yield will occur in visually sensitive areas on these lands.
- A full range of silvicultural practices will be used to keep sites productive and trees in healthy condition. Logging techniques will be used which cause little soil disturbance.
- Forest management activities on all private and nonfederally owned public lands will be administered by the State Forestry Department through the application of the Oregon Forest Practices Act. This Act requires that the State Forester be notified prior to beginning any commercial activity on forested lands including, but not limited to, forest harvesting, road construction and maintenance, silvicultural activities, application of chemicals and fuels management such as burning and clearing forest land for change to nonforest use. Approximately 7750 acres of private, state and county forest lands and some National Forest and BLM lands were designated as a High Visual Resource area in Clackamas County's Mt. Hood Community Plan. The effect of this designation will be to encourage protection of visual resources in the scenic corridor along Highway 26.

## HOUSING

- Housing patterns will be mixed. Through zoning, areas will be established for farm, rural residential, recreational residential and low density planned unit developments, as well as intensifying housing in present resort areas. Physical separation of local communities will be maintained.

Additional overnight or resort housing accommodations (e.g. condominiums, motels and hostels) will be encouraged on private land at Government Camp and Welches.

Overnight accommodation has been approved at Timberline Lodge (FEIS, 10/75) in order to make this area a more economically viable operation.

- Overnight housing at the Mt. Hood Meadows Ski Area may be considered in the future if it is determined that additional development on private land is inadequate to reasonably meet the needs of the winter sports users.
- Existing summer homes on National Forest lands will be retained but additional homes will not be permitted.
- Tree cutting and site grading standards will be established in all designated housing areas by the appropriate agency or unit of government.

#### COMMERCIAL AND INDUSTRIAL

- Growth of commercial facilities will occur within existing centers, particularly in Government Camp and Welches, as needed to service communities and the traveling public, but will not expand into other areas.
- Strip commercial development along Highway 26 and 35 will not be permitted.
- Industrial use will be limited to the existing area in Parkdale and will only include agricultural processing and farm or forestry related activities.

#### WILDERNESS AND PRIMITIVE RECREATION

- Zigzag Mountain and Mt. Hood Wilderness Study Areas will provide opportunities for the addition of 33,900 acres to the existing Mt. Hood Wilderness (14,100 acres).
- In designated wilderness areas, trails will be provided to protect wilderness values. Trails in conflict with wilderness values will be abandoned.
- Outside the designated wilderness, existing trails will be maintained and additional trails provided. Approximately 7700 acres will be designated for primitive or dispersed outdoor recreation activity to include hiking in an unaltered forest setting.
- A low elevation trail system in the Zigzag/Still Creek area will be established following public involvement to reduce conflicts.
- Additional areas with more convenient public access will be provided for such activities as primitive car camping, hiking, fishing, hunting, berry picking, woodcutting and roadside viewing. The 77,300 acres classified for General Forest and Roaded Recreation would be available for this purpose.
- Public access will be acquired to trailhead areas and trail connections presently on private lands. Acquisition will occur through land exchange, right-of-way donation, purchase of easements or purchase of the area in fee.



- Designated areas for off road motorized vehicles (ORV) will be shown on federal planning maps and will be posted with signs.

#### CONCENTRATED RECREATION AND SKIING

- There will be 8600 acres designated on public and private lands to allow developed recreation facilities and accommodations. Other compatible uses will also be permitted.
- On federal lands, any proposed expansion of facilities in ski permit areas will require a master plan and review through a separate process following NEPA requirements.
- The existing BLM Wildwood recreation area will be expanded with additional day use facilities and a trailhead bridge connection to the Plaza Trail.
- An area on private land is designated for expansion of the existing golf course at Bowman's Resort in the Welches area.
- A westward expansion of the Multitorpor Ski Bowl permit area would allow access to additional downhill terrain at higher elevations, providing for family use as well as the more experienced skiers.
- New terrain could open up near Mt. Hood Meadows by allowing expansion of the permit area toward White River. A Draft Environmental Statement which considers a variety of development opportunities for Mt. Hood Meadows has been completed recently. Future facility expansion, if permitted, would be controlled by setting capacities for base facilities and skiing based on environmental constraints.
- Cooper Spur could be considered for additional developed ski terrain and expanded facilities. No overnight accommodations are anticipated at Cooper Spur, but could be provided on private lands where designated by the Hood River County Plan.
- Timberline Lodge will provide overnight accommodation capacity for 250 persons; downhill skiing will continue with a "moderate level" increase in lift capacity and new summer ski area on Palmer Glacier. A day lodge will be added, governed by the concept of balanced on-site capacities. The main lodge will be managed under a stronger historic preservation program than in the past.
- An elevated transportation link between Government Camp and Timberline Lodge may be considered as a means of reducing transportation problems during the skiing season; this would require development of an environmental statement.

- The Environmental Protection land category will set aside approximately 4700 acres for wildlife and fisheries, as well as conservation and scenic recreation purposes. These values are also protected in the 55,300 acres under roadless management.
- Harassment of wildlife by people and free ranging dogs could increase. Poaching and dogs would be controlled through local community efforts and assistance, educational programs and enforcement of existing regulations by State Police and County Sheriff's offices.
- Winter range would be maintained in several lower elevation areas with an active management program for deer and elk. Closure of forest roads will take place in winter months to reduce big game harassment. Opportunities for wildlife viewing would be provided along trails and roads.
- The existing anadromous (i.e. salmon and steelhead) fisheries will be expanded through programs such as construction of the rearing ponds along the Salmon River. An active trout stocking program will maintain fishing opportunities.
- Minimum streamflow recommendations for aquatic fish habitat will be met and free flowing character of streams will be protected.
- Future roads across stream courses will provide for fish passage and consider facilities for fish stocking (i.e. access ramps).

#### MINERALS, ENERGY AND POWER

- Existing rock quarry sites such as Robinson, White River and Brightwood will continue to be used. Performance standards and reclamation plans will be required by federal, state and local requirements.

#### GEOTHERMAL

- On private, county and state lands, geothermal exploration and development will be controlled by local and state regulations. Clackamas County has specific requirements including consideration of off-site power transmission facilities.
- Activity and lease action on federal land will be regulated through the following use categories: (See Map 17).
  1. No Leasing. Rejection of lease applications will be recommended in the Mt. Hood Wilderness and designated Research Natural Areas.
  2. Unsuitable for Steam Generating Plants. Areas designated as unsuitable for geothermal electric generation physical plants will be recommended only for conditional lease issuance. These areas include:



- a. Floodplains and stream buffer strips on the Sandy and Zigzag Rivers shown as environmental protection areas and the floodplains of White and Hood Rivers.
- b. Corridor, 200 feet wide, each side of U.S. Highway 26, Highway 35 and Timberline Road; 200 feet buffer around campgrounds and administration sites.
- c. Developed Recreation Areas (shown Red on Map 15): Multnomah Ski Bowl, Timberline, Mt. Hood Meadows and Cooper Spur.
- d. Other areas designated as environmental protection areas: Summit Meadows, Red Top Meadows and Hood River Meadows.
- e. Steep slopes exceeding 30 percent.
- f. Other areas that may be determined unsuitable.

3. Nonsurface Occupancy. Areas unsuitable for surface occupancy due to geologic instability; areas have been identified. Conditional lease issuance would be made permitting directional drilling.

4. The remaining area is deemed available for standard geothermal leasing and lease issuance will be recommended.

- An EAR has been prepared for nonsurface occupancy leasing on National Forest lands in the Planning Unit. Detailed EARs will be required to evaluate lease stipulations in the future if conversion to a surface occupancy lease is considered.
- Should a viable geothermal resource be discovered on federally leased lands, a proposed operating plan will be prepared by the lease holder. The operating plan would be evaluated through the environmental analysis or environmental statement process. Needed conditions and restraints would be imposed on development at this time. Development of sources will be conditioned upon (1) demonstration that the source is developable and self sustaining without unacceptable effects on groundwater and adjacent activity areas or communities and (2) visual, air, water and noise performance standards.
- Existing power transmission corridors (e.g. Bonneville Power Administration) will be retained. No new corridors are planned. Landscape management and revegetation programs by public agencies will be established to make the corridors blend better with the natural landscape. Underground power utilities in all new developments is required. Reduction of the visual impact of existing power and telephone lines adjacent to and crossing over Highway 26, will be encouraged in visually sensitive areas. This may be accomplished by underground placement or relocation to provide vegetative screening.

- Gasoline usage and domestic consumption of home fuels could increase significantly; however, energy efficient construction will be encouraged and developments will be more concentrated, minimizing overall consumptive demands. The relative increase in fuel consumption will be potentially less than the direction that was indicated prior to this plan.

## TRANSPORTATION

- The entire section of U.S. 26 from Wildwood to Timberline Highway should be upgraded to at least an improved two lane design (12 foot lanes, 6-8 foot paved shoulders and passing and turning lanes as needed to provide safe sight distances). Except for the Wildwood to Forest boundary section, this would provide adequate highway capacities for present and near-future traffic volumes. Development of the Planning Unit as proposed is likely to generate traffic volumes in some sections which exceed improved two lane capacities as the projected population is reached.
- First priority for four lane improvement after the Wildwood/Forest boundary section would be the Rhododendron to Timberline Highway section. Expansion of the Forest boundary to Rhododendron section may also be justified at a later time. The section from Timberline Highway to Warm Springs Highway has sufficient capacity to carry the projected traffic volumes, but needs some major improvements in alignment and shoulder widths. Highway 35 would need improvement at the Mt. Hood Meadows intersection but there will be no other needs for increased capacity.
- Highway designs will conform to the Safe Highways Act and will take noise abatement into account. Protection of the scenic character of the highway corridor is a high priority. Parkway design concepts may be considered along with other design alternatives during the highway project development process, particularly in old growth stands near Wildwood (A.J. Dwyer Memorial Corridor).
- Increased use of mass transit to accommodate peak recreation uses will be encouraged. Several alternative transit modes will be considered including an elevated community transit system in Government Camp, connecting main ski areas, business centers and Timberline Lodge.
- Parking will be controlled for use of intended purposes and should be limited to amounts no greater than the capacities of the uses it serves. There is a need for expansion of parking in the White River area to provide for Boy Scout and Ski School activities held there and at Mt. Hood Meadows Ski Area.



## SERVICES AND PUBLIC FACILITIES

- Improvement and expansion of sewer and water services in Melches and Government Camp is permitted; recommended service boundaries are indicated on the Clackamas and Hood River County Comprehensive Plan maps.
- Improved domestic water facilities will be needed, especially in the proposed community sewer service areas and supply must be adequate to serve the intended design capacities. More effective utilization of existing suitable community systems and private investments in combination with new geologically sited groundwater sources, rather than any additional surface water diversions. Generally, groundwater sources will be preferred over water diversions.
- Structural fire protection will be provided by the Rural Fire Protection Districts with backup assistance from the State Forestry Department. Forest Service equipment will also be available but personnel will assist only in preventing fire from spreading to the surrounding area. Rural Fire Protection Districts and the State Forestry Department share the responsibility of administering domestic backyard burning. The State Forestry Department is responsible for providing forest fire protection (i.e. prevention and suppression and full management advice) for all private, nonfederal and BLM lands in the unit.
- In all areas not served by sewers, on-site sewage disposal will meet DEQ standards.
- Older platted areas outside of community sewer service areas will need to be reviewed by the state and county to determine redesign opportunities and feasible densities on subsurface disposal.
- In areas of high recreation use, sanitary systems for public convenience will be provided. There will be public education programs on wilderness sanitation.
- Central disposal sites for transferring solid waste will be established in both the westside corridor and north approach.
- Additional fire protection for forest lands will include management of forest fuels, fire suppression forces and resource activities to prevent major uncontrolled fires. It is recommended that combined forest fire suppression headquarters and community fire protection facility be provided in Government Camp.
- In the western portion of the Planning Unit, a new school and expansion of present facilities will be needed. Provision has been made for expansion of schools in the upper Hood River Valley, if necessary.
- Due to increased levels of use and population, additional state and county police protection will be required.

- A rest area and information center will be planned in cooperation with the State Highway Division within the westside corridor. A full assessment of location possibilities should be done before final designs are approved and actual site is selected.

#### LAND AND COMMUNITY CLASSIFICATIONS

- The emphasis in adopted community and county plans is on better defined service areas, maintenance of environmental quality standards, and coordination with other public agencies to achieve local and statewide goals.
- In the westside corridor, modified zoning patterns will be needed in the Cherryville/Sleepy Hollow area and along the south and north hillsides bordering the valley floor. To achieve a degree of relative concentration, Government Camp and Welches will be allowed to pursue the higher densities that are indicated for designated commercial and resort housing areas (see planning maps).
- Exclusive farm, general forest and some limited rural housing zone classifications will be introduced into the upper Hood River Valley on the eastside.

#### ADMINISTRATION AND PUBLIC COSTS

- Interagency coordination and planning and citizen involvement will continue as the plan is implemented. Community groups established for the county citizen involvement program will be used. Interagency technical review teams will continue to work together on issues of mutual concern. Existing county citizen involvement programs will be used and expanded in order to deal with the issues facing individual communities as well as the entire Planning Unit. Interagency representatives will be involved, if necessary, in the periodic review and amendment of the plan.
- Due to increases in public services (i.e. Highway 26, fire protection, sewers, water and schools), this plan will require an increase in public expenditures and would result in higher property taxes, particularly in areas served. These costs will be partially offset by new business tax payments.



Figure 29 - PROPOSED PLAN

## CAPACITIES BY COMMUNITY AND PROPOSED SERVICE AREAS

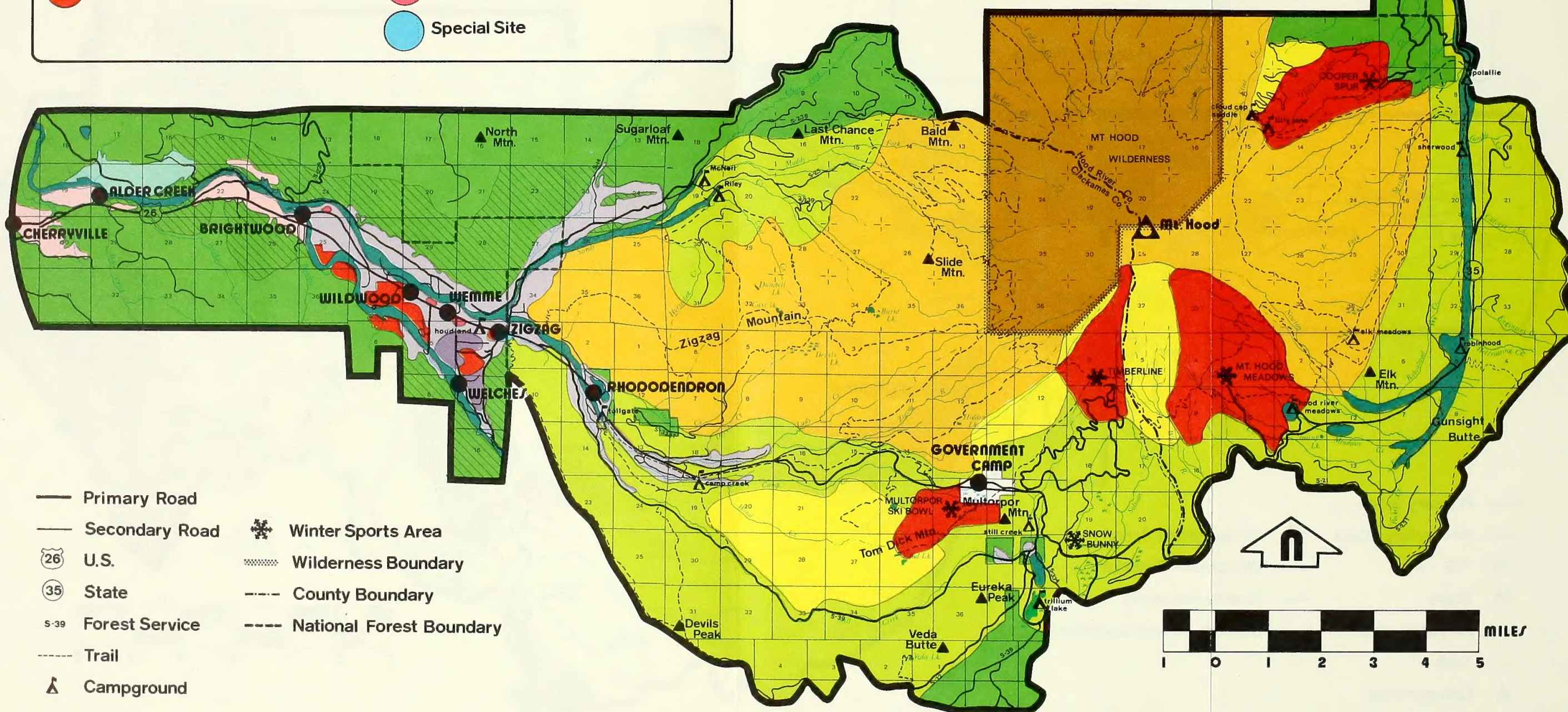
DESCRIPTION	Density Factor		Potential Units	
	(Units/Acre)	Acres	Low	High
I. Westside				
A. Proposed sanitary areas				
Zigzag Village	4	77	308	308
Rhododendron CBD	-	20	-	-
Welches				
Low density residential	2-4	200	400	800
Planned resort	4-6	365	1460	2190
Developed recreation	-	108	-	(100)
Subtotal			1860	2990
Timberline Rim	4	168	672	672
TOTALS (A)				
Low density residential		830	1380	1780
Planned resort		365	1460	2190
Developed recreation		108	-	(100)
TOTAL UNITS			2840	3970
Population @ 3 prsns/unit			8520	11910
B. Brightwood	.5-1	700	350	700
C. Rhododendron	-	100	150	200
D. Government Camp	-	205	1300	2200
E. Alder Crk/Sleepy Hollow	.2	1400	280	280
F. Wemme/Zigzag	-	2500	300	600
G. Lolo Pass	.5-1	400	200	400
Subtotal (B-G)			2580	4380
TOTAL UNITS			5420	8350
Population			16260	25050
II. Eastside				
A. Parkdale	-	220	-	580
B. Upper Valley	.1-2	1700	190	300
TOTAL UNITS			770	880
Population			2300	2600



# MT. HOOD PLANNING UNIT

PROPOSED

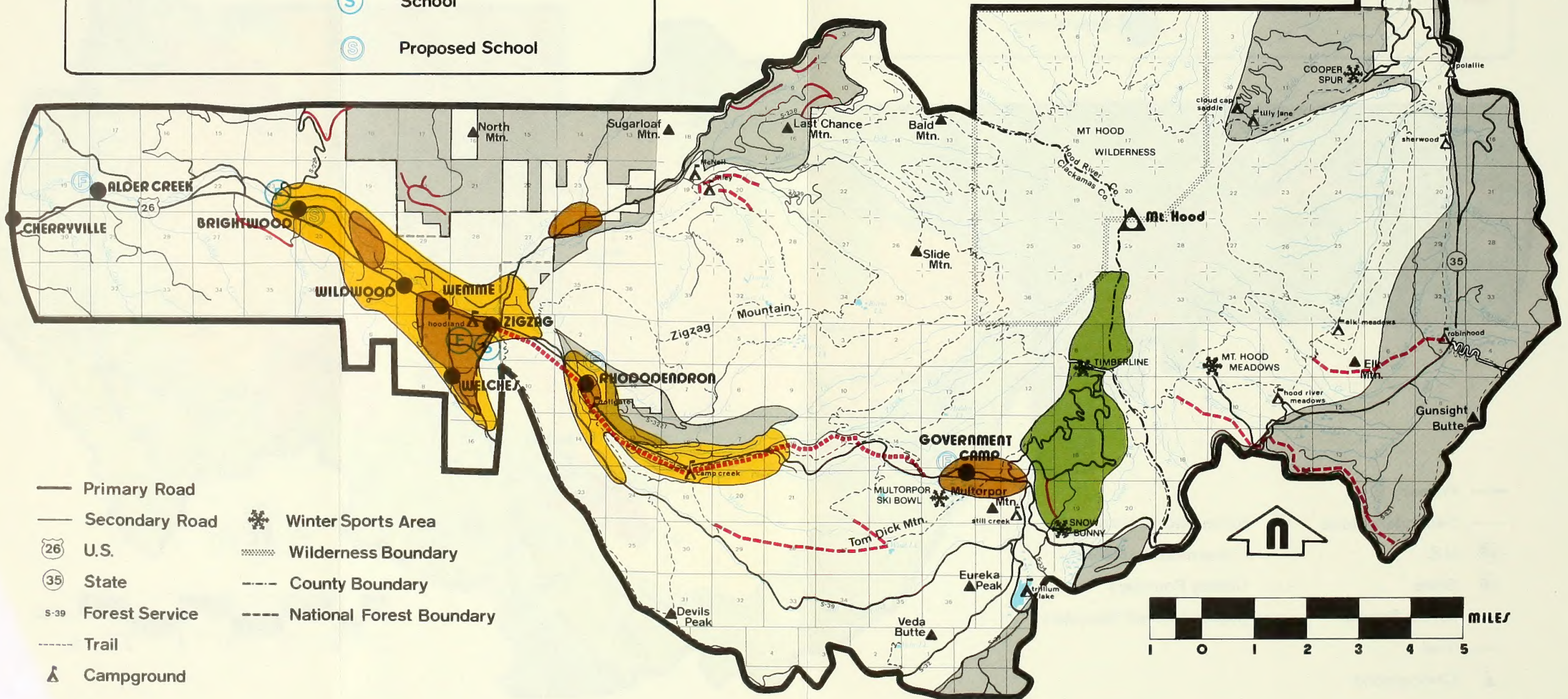
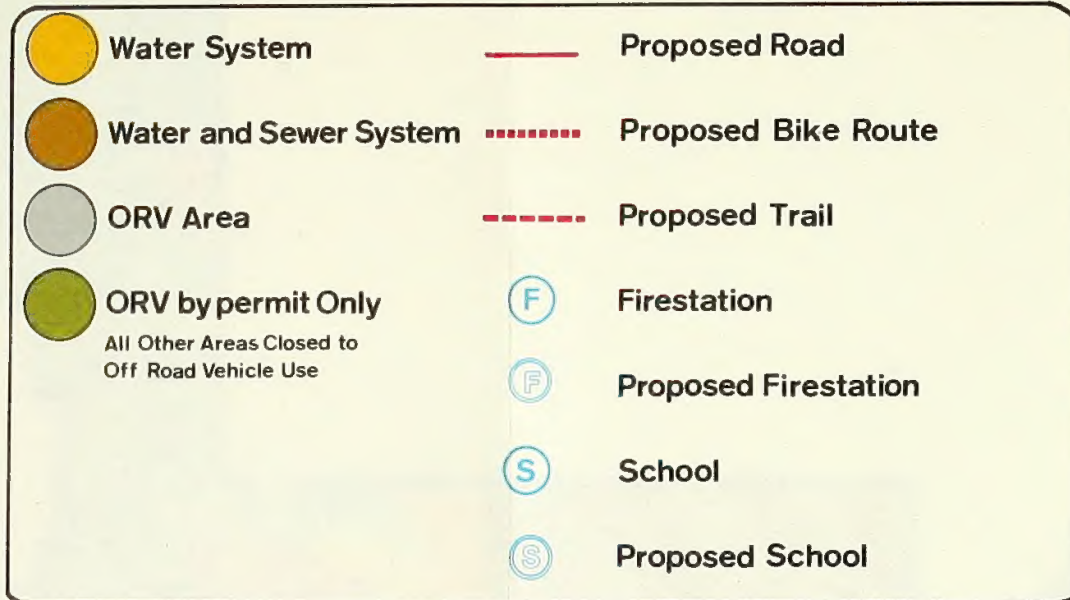
Map 15





# MT. HOOD PLANNING UNIT

## PROPOSED



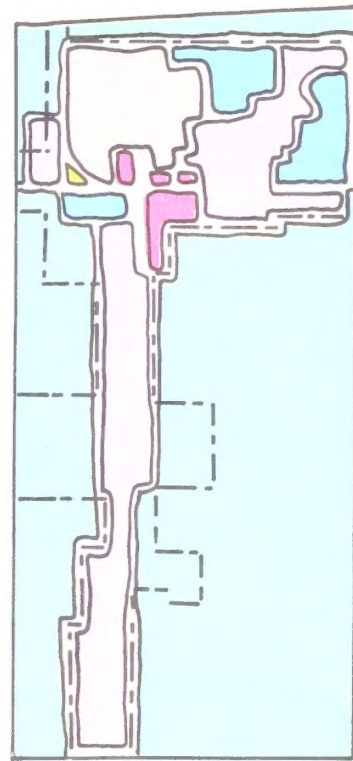


# COMMUNITY LAND USE



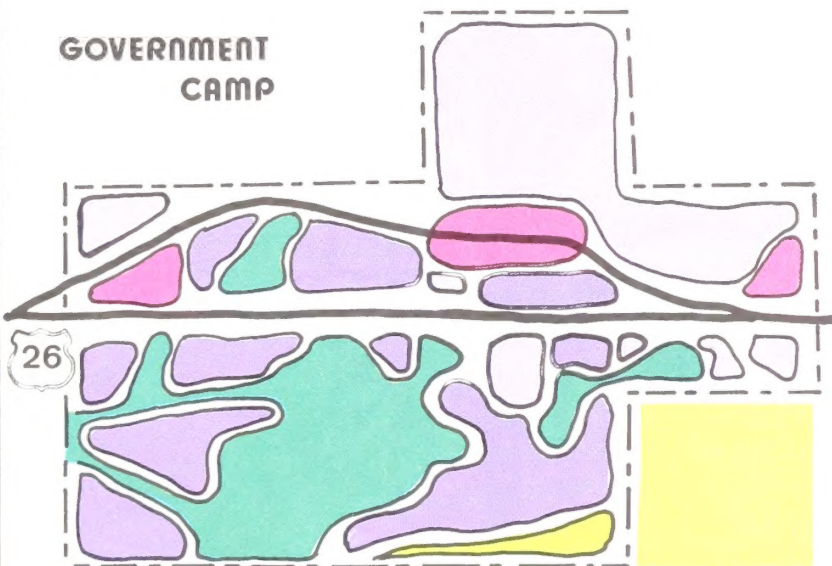
RHODODENDRON

## PARKDALE



0 1000'

## GOVERNMENT CAMP



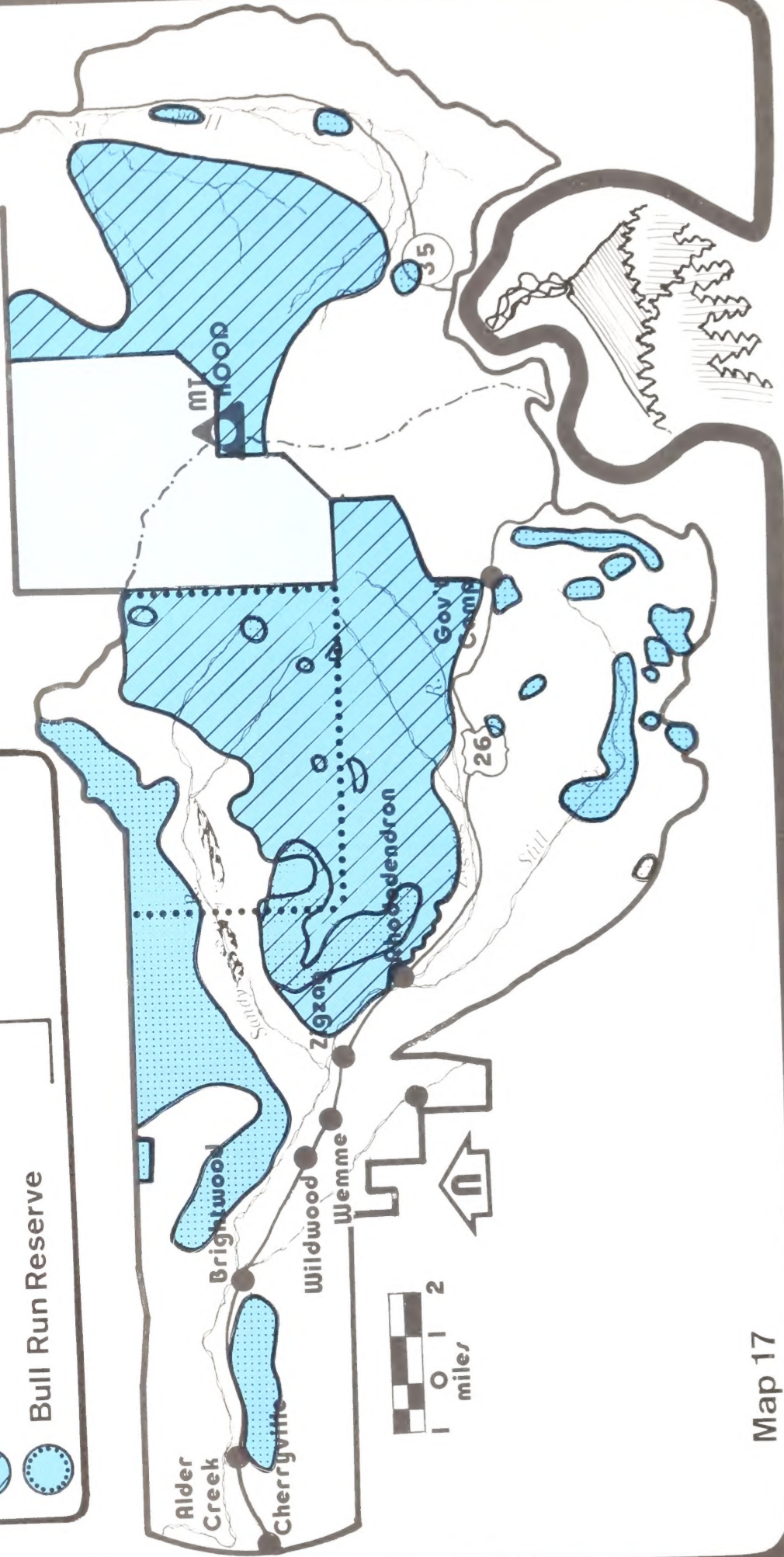
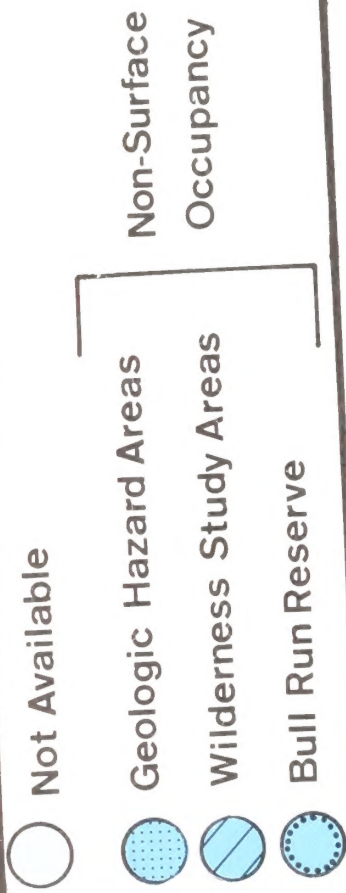
0 400'

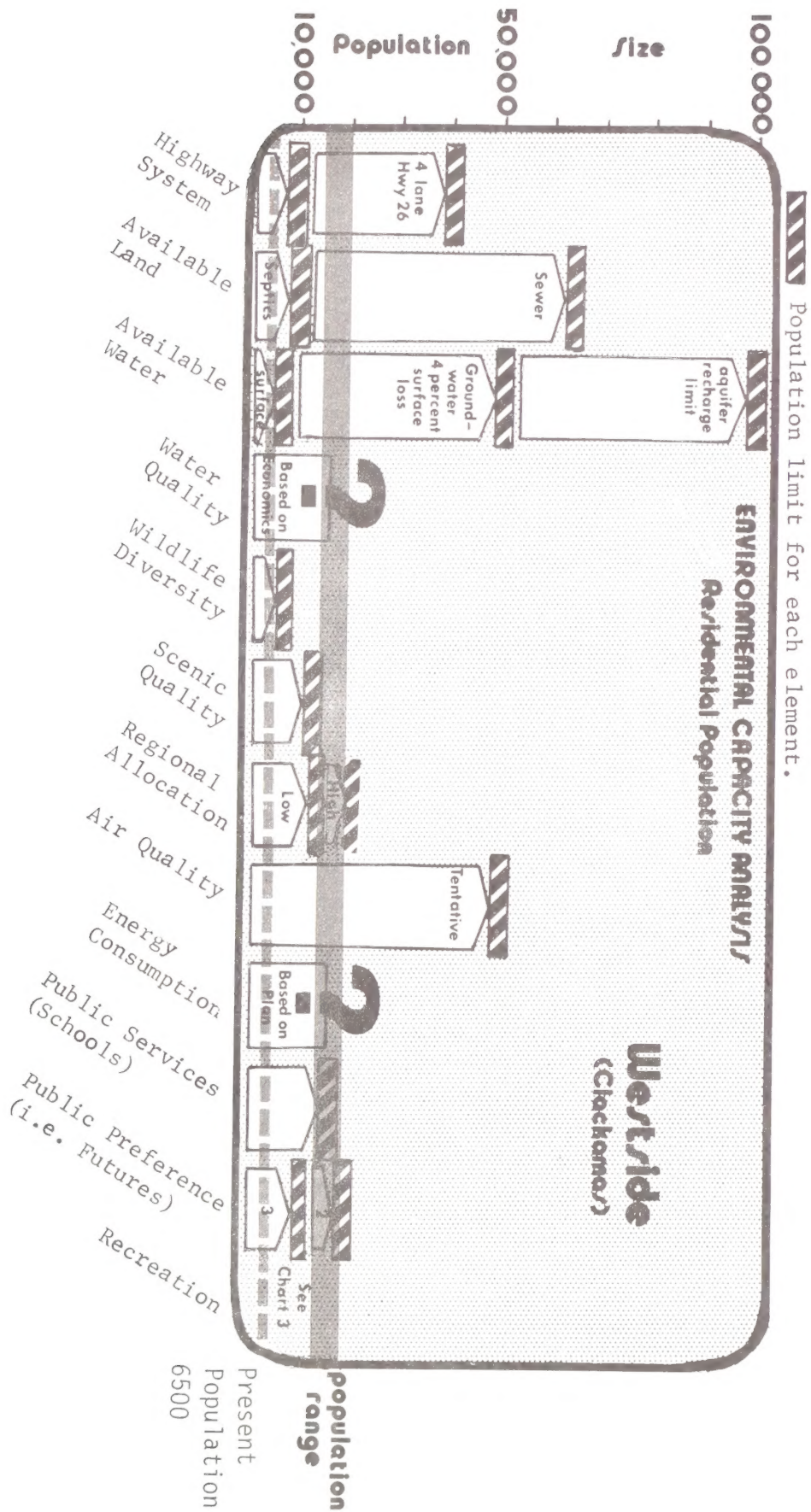
- Environmental Protection
- Outdoor Recreation
- Roaded Recreation
- Low Density Recreational
- Planned Resort
- Farm
- Commercial
- Industrial
- Special Site



# mt. hood planning unit

## GEOHERMAL AVAILABILITY







ENVIRONMENTAL IMPACTS - PROPOSED PLAN

Implementation of any management direction has environmental impacts. The Proposed Plan has been designed to realize favorable effects while minimizing adverse effects. The major tools used in minimizing these impacts were the land suitability analysis, environmental capacity analysis and public response to land use concepts in the "Futures" publication and Draft Environmental Statement.

## MICROCLIMATE\*

The impact of land use practices on microclimate aids in understanding long term implications of land use decisions. Microclimatic changes are significant because they affect land productivity and the composition of plant communities.

Areas in the Planning Unit where microclimate will be most significantly affected will be urbanized and residential lands, intensive farming areas and developed recreation areas. After these uses are initiated, the microclimate will change and then remain relatively static. Areas being managed intensively for orchard production will lose their productivity for some species but increase their ability to grow fruit and the annual variation in microclimate will have little variation subject primarily to microclimatic variations. In areas managed for forest production, there will be longer periods of cyclic variation on an 80-160 year rotation between timber removal. Natural forest rotation cycles would operate in 38 percent of the Planning Unit; in these areas, the variation would be the longest, often approaching 500 years in Western Oregon forests.

Microclimatic impacts of timber management on National Forest and BLM lands will be integrated to some extent by better distribution of cutting activity (i.e. monitoring the cutting activity by individual drainages) and the type, size and layout of cutting (e.g. shelterwood management).

## GEOLOGY, MINERALS AND ENERGY

Mass wasting (i.e. weathering, disintegration and transport) of the geologic profile is a constant naturally occurring process. It proceeds with varying rates and mechanisms, depending on rock type and condition and the transport agent involved. These processes may be accelerated or retarded by cultural activities such as road construction, timber harvest and general construction requiring excavation and slope loading. The mass wasting hazard depends on the proximity and frequency of exposure in the case of land movement and on stream use in relation to turbidity, bedload and glacial dams. Timber production is affected regardless of exposure frequency because the soil resource, and therefore regeneration capability is damaged. A more complete description of the mass wasting processes and potential may be found in Exhibit II.

\*See Glossary



The principal adverse effects will be caused through construction of roads and buildings. This should be minimized since geologically hazardous areas have been mapped and are not available for construction. Detailed site investigations and environmental analyses will also be required on all federal lands and on the major development projects in Clackamas County to further mitigate the possibility of geologic movement.

Potential damage from volcanic and seismic activity could be high, both in the Planning Unit and the Portland metropolitan areas due primarily to threats upon the major regional water, power and transportation systems and the threat of mudflows down the Sandy and Hood River corridors. Additional information on potential impacts is included in Exhibit H.

There should be no environmental affects from mining of locatable minerals since there are very few within the Planning Unit. There are however, several rockpits and quarries which are in existence and will continue to be used. Aggregate sand and gravel quarry operations affect visual resources. Excavation sites are subject to performance standards and reclamation plans will be required. Development of rockpit sites on federal lands requires an environmental assessment and management plan, and must meet the area's visual quality objective.

Development of potential geothermal energy sites within the Mt. Hood Planning Unit will have significant impact on the area if it occurs. These impacts would affect land use, visual resources, construction materials requirements, community growth and industrial activities. Major developments would require large blocks of land for facilities construction, road building, power or fluid transmission lines and water treatment facilities. These facilities would vary depending on whether the resource will sustain power generation or produces thermal water for heating only. This distinction cannot be made until exploration drilling fully evaluates the type of heat source and most suitable geohydrolic system. A more detailed description of potential impacts is included in Exhibit H.

Geothermal development would be a permitted use. Development of this resource would be highly regulated and conditioned upon: (1) demonstrating a developable, self sustaining source without significant environmental effects on the groundwater and adjacent activity areas or communities, (2) transmission primarily within the existing power or roadway corridors; and (3) meeting the visual, air and water, and noise performance standards applying to the area affected by the facility.

These conditions are more fully described in the Plan Description and address specific requirements for different types of areas. In addition to conditions upon areas available for development, the Proposed Plan restricts geothermal development in areas where it would be incompatible with the environmental capacity and management objectives (e.g. wilderness and environmental protection areas). Appropriate mitigating measures would then be incorporated in federal leases and development permits.

Existing power transmission corridors such as the Bonneville Power Administration line will be retained. No new corridors are planned. Landscape management and revegetation programs by public agencies will be established to



make the corridors blend better with the natural landscape (e.g. Visual Quality Objectives on federal lands). Underground power utilities in all new developments will be required and underground placement of existing overhead wiring along Highway 26 will be encouraged.

## SOILS

The potential for soil damage and erosion from the Proposed Plan is lower than Alternative A and higher than Alternative B, largely due to the amount of Developed Recreation, Roaded Recreation and General Forest in each of the alternatives. The acreage of land in developed community areas and private, county and state General Forest are the same for all alternatives. Developed Recreation covers the largest area under this plan.

The potential impact on soil resources will be lowest on 69,300 acres with slight to moderate erosion from trail and campsite development. There will be some erosion from farm operations and soils compaction around stock watering areas.

There will be erosion from roads and soil compaction from logging systems and developed recreation sites on 49,800 acres. These impacts have been rated low to moderate.

A moderate impact will be caused on 36,100 acres of the Planning Unit by erosion from roads, soil compaction from logging systems and developed recreation sites. The degree of soil damage will depend upon the logging system used and the specific design of the roads.

High impacts may occur on 7800 acres. These acres are the lands proposed to be more highly developed. The degree of soil damage will depend upon the development intensity. We can expect high erosion during construction, drain-fields, impervious surfacing, topsoil removal and compaction from roads, utilities and building siting. A more detailed assessment of the impact on soil resources may be found in Exhibits H and J.

Mitigating measures will be considered as specific projects or activities are reviewed through the county planning process (e.g. conditions upon approval of a planned unit development) and through environmental analysis reports (EAR) and environmental statements on federal lands. Types of mitigation which will be used include: logging systems which minimize soil compaction, exposure of bare soil, reduction of fuel hazards and limitation of operating seasons; road location and design which minimize impacts and development standards applied to recreation areas.

## WATER QUALITY AND QUANTITY

The Proposed Plan is designed to meet federal and state water quality standards; it allows some increase in timber harvest levels, road building and development which would cause some increase in sedimentation and nutrient release in the stream systems. This will occur principally adjacent to areas being intensively farmed or under development.



In the private, county and state forest areas, there will be some increase in sedimentation and nutrient increase associated with logging. However, meeting the Forest Practices Act (Field Guide to Oregon Forest Practices Rules, 3rd revision, July 1, 1974, Rules 24-541) with erosional structures and streamside protection should limit the affect and help maintain the health of streams.

Closer controls on nonpoint pollution on federal lands are expected since the land suitability analysis and resource information will be used to guide the design of roads, logging systems, erosion structures, slash disposal treatment and reforestation. The federal agencies design constraints and administrative controls to meet water quality objectives. Little or no measurable impact on water quality flowing from federally managed lands is anticipated.

Fire, floods and landflows are natural disasters which affect water quality. None of the alternatives will affect the major flooding potential. The Proposed Plan will affect fuels treatment and reduce fire hazard, thereby reducing the risk of a major fire and potential for subsequent flooding. Access provided the timber producing areas will ultimately reduce the debris damage potential associated with floods.

The impacts which will occur will be short term increases in nutrient and sediment increases in streams adjacent to logging units. Point source pollution\* would be reduced through the establishment of improved service areas and requirements, but nonpoint\* pollution will increase even with management controls.

Minor and temporary nutrient increases have been recorded in the Fox Creek Research Watershed to the north of the Planning Unit. Similar increases could be expected with the planned level of silvicultural activities. The increases, although detectable through intensive research, are expected to be negligible and nonsignificant in meeting water quality standards. With respect to areas of urbanization, there is potential for increased chemical introduction to streams which may result in localized algae problems in streams.

The increased impervious surfaces created by homes, driveways, commercial areas and other types of development will cause increases in surface runoff and some reduction in surface water quality. However, significant increases in surface runoff will appear in only the minor tributaries and require installation of larger sized culverts and drainage structures.

Groundwater supplies will be diminished slightly as a result of development of structures and roads and soil compaction in some areas. Groundwater quality will be protected by conversions to users within service areas. This will be a long term improvement. Secondary treatment with land storage will be used rather than tertiary treatment which consumes a high amount of energy. Conversion in Clackamas County to groundwater systems will provide a higher quality of raw water for domestic use and reduce the impact of surface water use or critical summer streamflows. If only surface water supplies are used for domestic water supplies, there will be serious depletion of streamflows and the fishery.



Water management costs associated with timber production and community and recreational development will increase in public and private sectors as the levels of use increase.

Impacts on water quality and quantity will be reduced by the concentration of development in community areas, development standards in the planning framework policies and local ordinances, and protection of water courses and wetlands in Environmental Protection areas.

#### AIR QUALITY AND NOISE

The Proposed Plan will cause temporary air quality degradation from increases in smoke and dust levels from burning and log hauling and road construction activities. In addition, air pollutants from the Portland metropolitan area will also influence the area. These impacts will be minimized by requiring that management activities be conducted within DEQ air quality standards and regulations. Auto and furnace emissions could range from 5085 to 6086 tons per year. This represents an increase over the existing situation (refer to Exhibit for additional details).

Noise levels will increase particularly in community areas with higher densities and a recreation/commercial orientation like Government Camp. Log haul and frequency of traffic contribute to high noise levels in these areas.

The DEQ standards and regulations reduce air quality and noise problems from point sources. The impact of slash burning is reduced through the cooperative Smoke Management Plan coordinated by the Oregon State Forestry Department. Additional use of mass transit to recreation areas on the mountain will also be encouraged to reduce vehicular pollution.

Noise level conflicts in community areas will be controlled to some extent by land use designations and restrictions in County Comprehensive Plans and ordinances.

#### VEGETATION

The impact on vegetation is directly related to the degree of disturbance and characteristics of the plant community and soil, moisture and slope conditions.

Alpine vegetation, subalpine meadows and forest and vegetation in stream courses and wetlands are the most sensitive to disturbance. Alpine areas are very critical because they have extremely short growing seasons, low soil fertility and low available moisture. Subalpine meadows and wetlands are fragile due to potential soil compaction.

Disturbance in highly erosive areas may result in continuing impacts because following initial disturbance, it may be difficult to reestablish vegetative cover.

Dispersed and developed recreational use in sensitive higher elevation plant communities provided for in the Proposed Plan will have a significant impact on areas closest to trails and developed recreational facilities.

All plant species and successional stages will probably continue to be represented in areas where the successional cycle is relatively natural; these areas include approximately 38 percent of the Planning Unit. In other words, where forest succession is managed for timber, developed recreation or other purposes, the forest will be younger, more vigorous and include more diversity in age, but fewer species will be represented in these managed plant communities. No species identified as rare, endangered or threatened by the Smithsonian or the Oregon Rare and Endangered Plant Species Task Force are expected to be lost from the Planning Unit, though some, particularly alpine species, may be severely reduced in number in areas of concentrated recreational use.

Areas with natural and near natural succession will serve as a resource for recreation and scientific research as well as a gene pool for maintaining diversity in forest plant species and communities.

#### WILDLIFE

The most critical impact on wildlife is the continuing increase in the human population. Although the Proposed Plan recommends moderate increase in population density (see Environmental Capacity Analysis, Figure 30), a considerable loss of wildlife diversity should be anticipated. Those wildlife species which are less able to adapt to humans and human caused harassment and environmental change will be the first to disappear (Horn, 1975). Resulting from the significant increase in people taking advantage of developed and dispersed recreational opportunities, an increase in wildlife harassment and associated habitat damage is anticipated (Horn, 1975). Both primary and secondary impacts will increase. Wildlife harassment by man and harassment by dogs will also increase as dogs are taken into the Planning Unit with their masters. This increase in recreational pressure will also result in trampling and damage of habitat along popular trails, streams and viewing points. Impacts resulting from facility development and population increase will be especially severe. Intensive timber management in the commercial forest lands would result in the loss of snag habitat which will detrimentally impact approximately 27 species of animals, some of which are considered of special interest. This impact will be somewhat alleviated on the National Forest through the implementation of the USFS Region Snag Habitat Policy.

Poaching and dogs may be controlled through local community efforts and assistance, educational programs and enforcement of existing regulations by state police and county sheriff's offices.

Winter range would be maintained in several lower elevation areas with an active management program for deer and elk. This will result in the closure of some forest roads during winter months to reduce big game harassment.



Approximately 60,400 acres will have wildlife values for various types of wilderness management, Environmental Protection and Unroaded Recreation for wildlife and fisheries as well as conservation and dispersed recreation purposes under the Proposed Plan not found in general forest lands.

#### FISHERIES

The potential for increased residences within the Planning Unit and increased visitors will increase the total fish catch of trout and anadromous fish and cause some loss in the quality of the fishing experience for native fish.

Nonpoint\* pollution will increase but should not be sufficient to cause measurable decreases in fish habitat. The fish habitat should be maintained in its present quality with possibility of improvement. This will occur through floodplain protection and provision for public exchange or purchase of lands in the floodplain, concentration of growth and improved sanitary systems, the use of groundwater rather than continued drawdown of surface waters, streamside management programs on public lands, and policies for drainageway maintenance.

The provision for added fish stocking access and fish rearing areas will provide an opportunity to increase the productive capacity of streams in the Planning Unit.

#### AGRICULTURE

The Proposed Plan should have little impact upon the amount of agricultural production in Hood River and Clackamas County. Lands now being used for agriculture are also designated as farm lands in the county plans. The one processing industry at Parkdale is designated as industrial land.

The impact upon the irrigation systems may be more substantial, particularly if the activities in watersheds produce sedimentation. Additional maintenance costs will be incurred by the East Fork Irrigation District which obtains its water from the East Fork of Hood River. The Middle Fork Irrigation District, which obtains its water from watersheds outside the Planning Unit, will not be affected by the Proposed Plan. Land activities which contribute the most sedimentation are residential construction, road building and timber harvesting.

#### TIMBER MANAGEMENT

The Proposed Plan will allocate about 73,540 acres to timber production and retain 60,400 acres of forest and nonforest land in an unroaded condition. There also will be 38,245 acres in designated Roaded Recreation where scenic and recreational objectives will reduce the potential timber cut from 16 to 43 percent. A 9000 acre portion of the Still Creek drainage and forests east of Hood River are extremely sensitive. Special logging systems may be used here. The steep slopes, inaccessibility and scenic quality objectives make access into this area by roads difficult.

\*See Glossary

The harvest level under this plan would range from 21,400 MBF under the current low level of management to 27,900 MBF under more intensive management. The basic change to intensive management will be to control the number of trees growing on a site to achieve maximum growth and vigor of trees. Under the Proposed Plan, revenue and employment related to timber harvest would be slightly lower than Alternative A, but significantly higher than Alternative B.

The harvest levels expressed in 1000 board feet yield per year (based on Scribner Decimal C log scale) would be as follows:

Management Unit	Low Level	Intensive Level
Mt. Hood National Forest	13.6	18.4
Bureau of Land Management	1.5	2.0
State of Oregon and Counties	1300	1700
Private Land	6000	7800
Total Planning Unit	22,400	28,300

#### PROPOSED PLAN - TIMBER

	Units	Federal	State/County	Private
Commercial Forest	Acres	52310	3800	17430
Low level mgmt	MBF/yr	15100	1300	6000
Timber value	\$/yr	2513130	215240	993310
County tx rtn	\$/yr	511632	125860	112215
Direct jobs	#/emp	35	7	34
Payroll value	\$/yr	5335000	408000	1739000
Intensive level mgmt	MBF/yr	20400	1700	7800
Timber value	\$/yr	3395040	231450	1291370
County tx rtn	\$/yr	321288	222350	112215
Direct jobs	#/emp	115	10	44
Payroll value	\$/yr	5365000	510000	2244000

Note: The annual harvest estimates are based on managed yield tables and are valid for comparative purposes only. These estimates should not be construed as being an annual harvest quota. This comparison reflects the potential production of the area based on site potential and current technology.

The forests within the Zigzag Mountain and the Mt. Hood Wilderness Study Areas have been withdrawn from the commercial forest base pending the outcome of wilderness study.

Potential timber management impacts will be reduced through the application of the Forest Practices Act on private, county and state lands and federal objectives and management requirements. Refer to Impact sections on Soils, Water Quality, Vegetation, Wildlife, Trails and Roads, and Visual Resources.



## RECREATION

The Proposed Plan recognizes the day use orientation of most recreationists that use the Planning Unit. The highest expected visitor day use will continue to be activities such as snowplay, driving for pleasure, golfing and picnicking. Lower increases in visitor day use could be expected for activities such as skiing, fishing, hunting, camping, scenic viewing, water sports, mountaineering and resort activities.

Because increases in population user levels are expected under the Proposed Plan, the quality of recreation experiences will be reduced in some cases; the quality of recreation experiences based on expected population user levels would be best for snow activities, fishing, driving for pleasure, resort activities such as golf and picnicking. A slightly lower quality could be expected for activities such as skiing, hunting, camping, scenic viewing, water sports and mountaineering. Demand for water oriented recreation cannot be met. This will result in higher use density at popular sites such as Trillium Lake.

Perhaps the greatest impact will be caused through the developed recreation facilities because of the extensive facilities required. Under the Proposed Plan, approximately 8600 acres are designated for concentrated recreation and skiing, and will allow developed recreation facilities and accommodations. This includes the potential expansion of several ski areas on National Forest lands as well as additional development on private lands like Bowman's Resort. Developed recreation ski areas are larger than existing permit area boundaries on National Forest lands in the Proposed Plan. Alternative A uses the existing permit area boundary and Alternative B uses a slightly smaller boundary. Through adherence to visual quality objectives and environmental capacity and county planning requirements on private lands, the impacts of these developments are expected to be minimized.

Though additional area would be converted to more structured developed recreation uses under the Proposed Plan, most of the Planning Unit will remain oriented to undeveloped, dispersed recreation. Existing trails will be maintained and additional trails provided. The trailhead for the Ramona Falls Trail will be moved back to the end of the existing pavement in order to reduce the number of visitors and resultant impact at the Ramona Falls area.

The Proposed Plan will offer recreation opportunities for people from all economic classes and physical capabilities. At Lost Creek, for example, there is a special trail for handicapped people. Schools and organizations like the Boy Scouts and YMCA regularly take disadvantaged urban children to the Mt. Hood area for hiking, camping or snowplay. There are a number of organizational camp facilities located in the Planning Unit.

Additional discussion of the environmental capacity of the area for recreation is included in the Appendix and under other impact categories (e.g. soils, vegetation, wildlife, transportation and visual resources).

## WILDERNESS AND ROADLESS AREAS

The Proposed Plan designates 55,700 acres of the existing total of 66,200 acres of roadless areas\* for some type of roadless management. All are on National Forest lands and were evaluated for wilderness suitability (see the Rationale for the Proposed Plan). In addition to the 48,000 acres designated as Wilderness or Wilderness Study Areas, the Proposed Plan also identifies 7700 acres for Unroaded Recreation.

In these areas, the natural environment will be protected and will provide high quality water production, wildlife habitat and recreational opportunities. Some use conflicts will occur in popular recreation areas, but these impacts can be mitigated to some extent by wilderness ranger programs and trail maintenance.

Under the Proposed Plan, 10,500 acres of presently unroaded area will be designated for Roaded Recreation.

## TRANSPORTATION - STATE SYSTEM

Under the Proposed Plan, changes required in the Mt. Hood Highway (U.S. 26) could create some significant impacts. Present traffic volumes on U.S. 26 are below average daily traffic design capacities. The section from Wildwood to the Forest boundary is now operating close to capacity and results in traffic congestion during peak use periods, particularly in bad weather conditions. Highway 26 and 35 will have to be made improved two lane roads with turnout lanes to meet the needs of the Planning Unit. However, as population begins to approach the levels proposed in the county plans, then most sections of Highway 26 between Wildwood and the Timberline Highway may need expansion to four lanes, unless other means to increase transportation capacity become available.

Additional highway right-of-way would be needed and there would be a conversion of this land to transportation uses. Few property improvements such as buildings would be affected, because existing setbacks are adequate in most cases.

Expansion to four highway lanes along the north side of the Dwyer Forest Corridor would remove trees and alter the highway users' visual experience in the Wildwood/Forest boundary highway section without design alternatives (e.g. divided highways). Some other areas of old growth timber along the existing highway would also be affected.

Revisions in local circulation patterns and access points may be necessary at population centers to reduce congestion on the main highway.

Proposed highway projects in the area will be directed by the Oregon State Department of Transportation. This will include the development of appropriate alternatives, environmental analyses, technical and public reviews and hearings as well as continuing coordination with the agencies involved in the area.

\*Including the Mt. Hood Wilderness.



Traffic congestion problems during the ski season could be reduced by limiting the number of parking lots, charging parking fees and subsidizing and improving mass transit. Mass transit improvements such as an advanced reservation system for ski area parking lots, metered egress from parking lots during peak traffic periods which would allow immediate access for buses or an automated traffic control system for all the ski areas are possible and may be feasible some time in the future. Review of proposed expansion of ski area facilities will address mass transit issues.

#### FOREST SERVICE ROADS AND TRAILS

There are no major Forest Service roads proposed under this plan. The approximately six miles of roads which are proposed are primarily extensions of existing roads and in most cases, are short sections needed for completion of existing road systems. Care has been taken in laying out the roads to ensure that the terrain and soil types are suitable for road building. Approximately 52 miles of trails are to be built under this proposal. This includes a bicycle trail approximately ten miles long and a low elevation hiking trail, as well as other multipurpose trails. Trails will be signed to avoid user conflicts between hikers, horse riders and motorized vehicles.

The primary biological impact from additional roads and trails would be one of increasing foot and vehicular traffic through areas which were previously less impacted. This could produce wildlife harassment and its resultant reduction in wildlife diversity, the potential detrimental impact of foot traffic on vegetation, soil compaction, blowing dust, some temporary noise and possible soil movement. Social benefits would occur from the development of roads and trails. The scenic values may be improved through the revegetation and reshaping of existing and proposed new roads and additional trails will provide a means for dispersing the recreation use over more areas as well as providing additional recreation facilities for an increasing need.

#### FIRE MANAGEMENT

The potential for structural fires will increase under the Proposed Plan due to the greater number of residences and commercial buildings provided for in county plans. However, because this growth will be more concentrated than the present situations, better fire protection can be provided at a lower cost. More fires will occur, but with the additional tax support of higher population levels, more effective fire control will be available.

The inherent fire risks and hazards connected with timber harvesting will be greater than Alternative B and less than Alternative A, roughly proportional to the amount of land allocated to logging activity.

The Proposed Plan will keep fuels to a moderate or low level in about 77,300 acres of the Planning Unit and permit prescribed burning in areas other than those designated for wilderness study. This action will avoid extreme fuels buildup. In comparison to the other alternatives, the Proposed Plan has about the same potential for serious wildfires as Alternative A, but significantly less potential than Alternative B.

Fire danger due to recreational use will be lower than Alternative B since fewer acres will be designated for dispersed roadless area activity. Similarly, it will be appreciably higher than Alternative A. The additional roads and fire control facilities (e.g. helispots and pump chances) designated in preattack planning will improve the opportunity to control fires quickly, but often will also increase the level of recreational use in the area.

An aggressive fire prevention program would be used to reduce the occurrence of fire starts.

#### VISUAL RESOURCES

Under the Proposed Plan, 110,800 acres of the lands in the Planning Unit will be managed to meet the highest three visual quality objectives of preservation, retention and partial retention\*. This represents an increase of percent over the lands currently managed for preservation, retention and partial retention. The major impacts on the visual resources will come from activities such as timber harvesting, road construction, housing and commercial and industrial developments. These impacts will be alleviated under the current county plans which confine commercial facilities to existing centers, prohibit strip commercial development on Highway 26 and 35, establish and maintain tree cutting standards in designated housing areas and require performance standards in reclamation plans in rock quarry sites, and landscape management and revegetation programs on power transmission corridors. Under this alternative, scenic quality would be upgraded on Forest Service lands as compared to the present direction or Alternative A.

The Clackamas County Comprehensive Plan encourages recognition of visual values on private, county, state and federal lands within the scenic corridor of Highway 26 west of the Forest boundary.

#### CULTURAL RESOURCES

The Proposed Plan will have no direct effect, either favorably or adversely, on cultural resources. However, project plans allowed under this plan could adversely affect historic or archaeological sites. Timber sales, road building, highway improvement, building construction and ski area expansion could inadvertently damage as yet unidentified sites during ground disturbing activities. Increased population and increased recreational use could damage historic sites.

The project planning process for any ground disturbing activities on federal land or by federally funded projects will include an on-the-ground inventory of cultural resource sites, districts, objects and structures. As required by Executive Order 11593, compliance with 36 CFR 300 procedures will be documented in Project Environmental Analysis Reports (EARs).

\*See Glossary



The Clackamas County zoning ordinance refers to historical resources specifically in the recreational/residential (R-R) district; section 22 of the ordinance states that effects of historic properties will be determined and evaluated as part of each major development plan within this zone.

Because the heaviest concentration of cultural resources occurs along the route of the Barlow Road, any activities proposed in this area are more likely to impact cultural resources than in more remote areas. Generally, projects effecting flat or sloping terrain at lower elevations or along the edges of water courses are more likely to affect cultural resource sites than projects in higher, more rugged terrain.

Mitigation of adverse effects on cultural resources will be accomplished by:

1. Field inventories during the project planning stage for all ground disturbing projects in the area of actual proposed disturbance.
2. Modifying the proposed project to avoid any cultural resource identified during inventory.
3. In cases where the proposed project cannot feasibly be modified to avoid a cultural resource, the site will be evaluated according to the procedures required by 36 CFR 800 and a memorandum of agreement developed in consultation with the State Historic Preservation Officer which will describe specific mitigation measures for all sites eligible for the National Register of Historic Places.
4. All inventories, project modifications, consultations and mitigation will be described in the project EAR.

## SOCIAL CHARACTERISTICS

Population and Community Identity. Recent planning direction adopted by Clackamas and Hood River Counties provide for growth from 2.6-3.1 times the current population level (seasonal and year round). This population increase and trends in the pattern of use in the Planning Unit will have significant influence upon the mountain area communities. Communities along Highway 26 in Clackamas County will probably undergo the most change due to their proximity to the Portland metropolitan area and related factors such as seasonal fluctuations in residents and recreational/tourist commercial development.

In areas like Government Camp which allow high population densities and more developed tourist, recreation and commercial areas, the composition of the community may change significantly. Studies of the impact of ski areas on small nearby communities indicate that older established residents will tend to migrate out of the immediate area when faced with more crowding, increasing land values, greater numbers of young and middle-aged residents, shorter lengths of residence and different lifestyles. These types of changes tend to make the communities less cohesive.

The potential for these types of impacts would not be as high in Hood River County because less area has been designated for residential use, proposed population densities are lower, pressure for second home development is lower and the economy of the area is stabilized by agricultural crops.

Minority groups will probably remain at the same level in the population with Hood River County continuing to have the greatest number of minority residents and migrants.

Growth and Development. Differences in allocation of federal lands may probably affect the rates of population growth and development on private lands in the Planning Unit. Under the Proposed Plan, the area devoted to Developed Recreation is larger than the other alternatives, geothermal development may be permitted and 49 percent of the area is allocated for some level of timber management. These allocations have potential for greater impacts on the growth than Alternative B and less impact than Alternative A. However, the level of impact cannot be determined until specific developed recreation and geothermal projects are proposed and reviewed through environmental statements. Even though the Proposed Plan identifies expanded ski area boundaries for Mt. Hood Meadows and Multipor, this does not commit the Forest Service to any additional development of facilities in these areas. Similarly, the impact of possible geothermal development is uncertain because the location of development and identification of resources are not known. If Developed Recreation facilities are expanded, then this would tend to attract additional residents, visitors and investors to the recreation oriented westside communities, particularly Government Camp and Welches. Projected population and development levels would be reached sooner under this situation and could create significant socio-economic impacts because changes in the composition of the population and character of the area could occur at an accelerated rate in some communities.

A number of environmental and social components would be impacted as this growth occurs. Those most significant include: soil, through disturbance and coverage; water, by increasing domestic consumption and the amount of storm runoff and sewage effluent; vegetation, by cutting and removal; wildlife, through increased harassment and disturbance of natural habitat; visual quality, by intrusion in scenic areas; recreation, by increasing demand for facilities; transportation by increasing the need for new roads and highway expansion or improvement; sewer, water supply, waste disposal and fire protection by creating new, expanded demands for these essential services.

In addition, the economy would be affected through an increase in jobs, particularly in the construction and retail commercial sectors. However, public and private investment costs would also increase. Direct capital and operating expenditures to service the Proposed Plan are estimated to be \$28-\$38 million. This growth would also affect the present communities through increased automobile congestion, criminal activity, noise and possible loss of "small mountain community" atmosphere as densities and neighboring land uses change.



Housing. Housing needs are projected to more than double during the next 25 years. Real estate values will probably increase and demand for affordable housing by local employees will increase, while their availability will decrease due to the demand for second houses, particularly on the westside. Second homes will continue to be a major component of the housing mix.

Employment and Occupations. Under the Proposed Plan, strong seasonal fluctuations in employment would continue. Development will increase seasonal employment in construction and commercial/recreation industries. Small commercial recreation businesses will continue to develop with relatively low sales volumes, few employees, cyclic seasonal fluctuation in profits and jobs.

Local young people will tend to leave the area for higher education or better employment opportunities in urban areas, while young people from other areas move into the area for short term seasonal recreation related jobs. Federal agencies provide employment for youth, usually from other areas. As more affluent people move to the area, the disparity between income levels and pockets of poverty in the area may lead to alienation between residents.

Traditional employment patterns of minority residents and migrant workers in agriculture related jobs are expected to continue in Hood River County portion of the area and not be affected significantly by land allocation on federal lands. However, it is possible that resident population levels, technological changes in food harvesting and processing and other factors could cause shifts in minority employment to jobs related to tourism and commercial activity, building construction and timber products which are affected by the alternatives.

Community Services. Growth will increase demands upon water supplies, sewage facilities, medical services, police and fire protection and schools. Sewage and water systems and county planning will tend to cluster development but costs of community services will still increase though some like medical services may become more suitable as the population becomes large enough to support development of facilities.

The Proposed Plan would provide wider diversity of employment opportunities than the other alternatives.

Construction of sewage treatment facilities implementing the Mt. Hood Community Plan will have environmental impacts. The land required to accommodate treatment components and facilities will be permanently set aside as a plant site and will need to be fenced to limit public access. Where land disposal is required to conform with a zero effluent discharge standard, additional acreage will have to be set aside. Land used for spray irrigation of effluents could have dual uses such as pasture land, golf courses or timber growing in addition to waste disposal. Treatment plants may become a dominant feature in the landscape unless designed with generally a low profile and screened. The effect of these facilities upon the land based ecosystem will be perm-

anent for the life of the plant and a change in the present system can be expected. When it is replaced by another facility, the land could revert back to its previous use and revert to a near natural state when abandoned.

Construction of irrigation fills which may be proposed may cause some influence upon the groundwater tables of the area in that the water that does not evaporate at the time of application or that is not transpired from the vegetation, will percolate downward and join the groundwater. By carefully locating these irrigation fields in proper soil conditions, these affects can be alleviated. Proper sludge disposal sites will be selected and are addressed in the recent Clackamas County sewer study.

The construction of sewage treatment facilities involves all of the adversities of clearing, grading, noise and inconvenience. These are, for the most part, short term problems. Plants of the size being considered will be built in about a years' time. Natural site drainage will have to be maintained throughout the construction. Since the site chosen will be out of the floodplain, no extensive erosion will be anticipated either during or after construction. Unprotected land may erode during construction but this can be minimized with proper drainage control. Conversely, dust during construction will be a problem also, but this will be limited to the construction site and it should not cause too much nuisance for the adjacent areas. Noise during construction will have to be tolerated.

In all areas not served by sewers, on-site sewage disposal methods will meet the Department of Environmental Quality standards.

For more detailed comparison of the effects of the Proposed Plan, refer to the Appendix.

Energy Consumption. Under the Proposed Plan, gasoline usage and domestic consumption of home fuels could triple compared with the existing usage. However, energy efficient construction will be encouraged and developments will be more concentrated, which will minimize the overall consumptive demands. The relative increase in fuel consumption under the Proposed Plan will be potentially less than continuing under the present direction of alternative A which allocates more area to timber production. A detailed description of fuel consumption is in the Appendix.

The relative efficiency of fuels should be improved by concentration of development in established communities. This will make available more efficient transportation, encourage nonfuel transportation (foot and bike) and mass transit from centers. The availability of geothermal power in the unit could provide some energy to the local area as well as contributing energy production to the northwest power network.



## ECONOMIC ACTIVITY

Under the Proposed Plan, there will undoubtedly be increases in commercial activity corresponding to population growth in the region and local area. Activity increases will be more than proportional to population increase. The exact level of economic activity will depend on the ratio of permanent to seasonal population and expenditures made by local residents and visitors. Economies of scale will permit capturing of additional revenues as the permanent population expands. Consequently, projections based on current economic activity values will be estimates of minimum value of future activity. They are also based on current dollars and do not reflect the effect of inflation in future years. Projections indicate a growing relative economic importance of the commercial/recreation sector compared to agricultural and wood products activities.

Agriculture is limited by land constraints and wood products by timber acreage identified for harvest. Growth in these sectors is limited to increases in yield related to intensive management practices. Growth in commercial/recreation activity is subject to different constraints which pose separate regional and sectoral influences on demographic settlement. The sum of these influences determines total labor demand and total value of the economic products.

Agriculture is not significantly affected under this plan. Without outside investment, incremental residential growth in Parkdale will not affect total land available for agriculture. Production methods will continue to use intensive harvesting techniques. Actual revenue will fluctuate depending on weather conditions. Tree density on existing orchards will increase slightly over time.

Timber harvest values and employment would reflect possible changes in intensive management to increase yield. The economic benefits of increases in timber yield may not be directly realized in the Planning Unit because most wood processing industries are located outside the Unit. However, some favorable affects may occur in terms of additional employment.

Future growth will be determined by seasonal recreation home development, resident population size and tourism demand and visitor use activity.

Seasonal recreational home development patterns can be determined with reasonable accuracy. For developed recreation facilities on public land, deficiencies in data and uncertainties about future permitted use place projected use levels in doubt. Anticipated use and permitted use at developed sites and in undeveloped areas are major controlling factors over future economic activity. Visitor use determines commercial activity both on-site and in the adjacent population and commercial services corridor along Highway 26. A large portion of the resident population in the Clackamas County part of the Planning Unit derives its means of subsistence (i.e. wages and income) and thus the purpose for residing in the area, from the recreational use base. The recreational use base is composed of both developed and undeveloped sites on public land, summer home development and private sector recreation facilities (primarily Bowman's).

## RATIONALE FOR THE PROPOSED PLAN

The Proposed Plan provides land management direction for the national lands (USFS and BLM) in the Mt. Hood Area. This plan is designed to: (1) be consistent with recently adopted county plans within the Planning Unit, (2) conform with the land suitability analysis, (3) deal effectively with the concerns of the public and other agencies to the alternatives in the Draft Environmental Statement and (4) designed to achieve the goals for the Planning Unit and State of Oregon (LCDC). Planning Unit goals were developed recognizing the Forest and Rangeland Resources Planning Act (RPA).

Adopted County Plans. The recently adopted Clackamas County Plan (Mt. Hood Community Plan) follows the direction for the Proposed Plan in the Mt. Hood Interagency Plan Draft Environmental Statement with the following exceptions: (1) full yield harvesting options on forest lands in the county are retained in conformance with the State Forest Practices Act and (2) Government Camp is established as a relatively high density resort area. Clackamas County's adopted plan also enlarges the sewer water service area in the community of Welches. The Hood River Plan however, closely follows Alternative B in the Draft EIS, designating these lands for continued use, primarily for agriculture and forest uses.

Strong concerns were expressed by both counties for retaining and developing tourist and forest industries, while maintaining the diversity of recreational experiences including some increase to the existing Mt. Hood Wilderness.

The Proposed Plan has been modified on National Forest and BLM lands to increase the area available for timber production, recreational development and potential wilderness classification. A high variety of recreational opportunities will be available under the Proposed Plan.

The potential for geothermal energy exploration and development is retained.

Land Suitability Analysis. All land uses and management practices being considered in the Draft and Final EIS are based on the land suitability analysis. This analysis is a basic planning tool which is being used by all of the participating agencies and is based upon the intrinsic characteristics of the climate, soils, geology, vegetation and wildlife as well as current management practices. At a point where significant technological changes occur which modify the way use affects land, this analysis should be updated.

### Public and Agency Concerns

1. Scenic Forest. A great deal of concern was expressed about the scenic forest designation on private land, so both counties removed this designation in favor of a forest designation to be managed in conformance with the State Forest Practices Act.



Clackamas County further designated areas of high visual resource along Highway 26 and community areas. The scenic forest designation title was changed to Roaded Recreation to more accurately reflect the management direction for use; the description was rewritten to provide a clearer direction for management of the federal lands. The assessment was revised to reflect updated timber yields and associated economic benefits.

2. Dispersed Recreation. Though there was mixed expression from the public about dispersed recreation in primitive areas, there was a clear desire to have primitive areas available for recreation and without roads. This classification was retitled Unroaded Recreation and rewritten to provide for the management flexibility to keep the areas available for a variety of recreational activities in a near natural condition.

3. Housing, Resorts, Rural Residential, Government Camp. These issues were dealt with by the counties through the hearing at the Planning Commission and Board of Commissioner levels. The plan adoption process has been completed and this statement reflects those decisions. There were no changes in the summer homes area on National Forest land.

4. Ski Area Expansion. There was mixed support for ski area expansion. With the projected increase in accommodations in Government Camp and projected growth in the skiing recreation, the Proposed Plan allows for expansion in the Multnomah and Mt. Hood Meadows Ski Areas permit boundaries. Actual development will be based in environmental analyses dealing with elements of carrying capacity.

5. Wilderness. There was mixed concern about wilderness; some felt there was too little wilderness while others felt there is too much.

Since the general sentiment expresses concern over the small size of the present Mt. Hood Wilderness and there are administrative problems in managing an area of this size, wilderness study is proposed to determine the area to be recommended to Congress. Since this is a highly controversial question, it may be handled most thoroughly by a separate study.

6. Mt. Hood Meadows Overnight Accommodations. This issue is highly controversial. This plan will retain the overnight option but the issues are being dealt with specifically in the Mt. Hood Meadows Master Plan and Environmental Statement.

7. Roadless Areas. All roadless areas were considered for their wilderness potential. Based on the criteria described in FSM 2321.11-2321.13, 33,500 acres were designated by the Forest Service; an additional 400 acres are recommended for Wilderness Study under the Proposed Plan. Criteria considered include the suitability, availability, need and manageability of these areas for wilderness.

Suitability refers to the definition of wilderness as set forth in the Wilderness Act; availability reviews the long run tradeoffs with other uses for the area; need is concerned with the location in relation to other available areas and what makes the area more suitable or needed if similar areas are available; and manageability deals with the area's boundaries and natural features which would allow the area to be recognized by the public and protected.

Figure 31 describes how each roadless area meets the wilderness criteria:

Figure 31

Roadless Area	Suit- ability	Characteristic			Manage- ability
		Avail- ability	Need		
084 MH Additions	Mod	Mod	Mod-Hi		Mod-Hi
085 Wind Creek	Low	Mod	Low		Low
086 Salmon River	Low	Mod	Low		Mod

In general, the Mt. Hood Additions were found to have higher ratings than the other areas in wilderness suitability, need and manageability. The Wind Creek area had the same ratings as the Salmon River area, except in manageability where Salmon River has a higher rating.

#### Discussion of Ratings:

a. The Mt. Hood Additions area offers an opportunity to expand and enhance the existing Mt. Hood Wilderness. This roadless area has some outstanding opportunities for primitive and unconfined recreation experiences. The wilderness boundary could be adjusted through wilderness study to avoid significant resource loss and provide a more manageable boundary.

Two small additions totalling 400 acres are recommended for wilderness study in the Proposed Plan because they are adjacent to the existing Mt. Hood and Zigzag Wilderness Study Areas and were found to be suitable for wilderness consideration. By their addition, the wilderness study area boundary is made more identifiable because it follows natural features and recognizes the interface with ski area permit boundaries. A portion of the White River and Palmer Glacier above the Timberline and Mt. Hood Meadows Ski Areas was added due to its potential suitability and because it formed a more logical boundary for study; the boundary follows a natural break in slope which is readily identifiable on the ground. An area along Clark Creek was also recommended for addition to the wilderness study area because it was found to have potential wilderness suitability and a more identifiable boundary. Previously, the area formed a small "island" between the



existing wilderness study area and the Mt. Hood Meadows Ski Area. By enlarging the wilderness study area to follow Clark Creek which is also the ski area boundary, the study area forms a more logical unit.

b. The Wind Creek area is bordered by Highway 26 and developed areas at Multigor, Ski Bowl and the Zigzag summer homes area. This area does not offer outstanding opportunities for challenge, solitude or primitive and unconfined recreational experience. It is bordered by relatively well traveled roads on the north and south and by housing and ski area developments on the west and east. The area would be difficult to manage to meet wilderness experience objectives.

c. The Salmon River Area is located south of Still Creek. This is a stringer type roadless area; it is remote, but **does not offer outstanding opportunities for primitive and unconfined recreational experiences.** The area has a relatively uniform stand of timber resulting from a large fire around the turn of the century. The lower portions of the area are highly productive timber sites.

There were many other specific issues and points. These have been **treated in specific changes as enumerated in the Response to the Public section.**

LCDC Goals, Planning Unit Goals and RPA Land Allocation. The proposal was altered attempting to more fully achieve these goals. The following is a comparative evaluation of how these alternatives will achieve these goals. This was the major consideration in the selection of the Proposed Plan.

## GOALS ANALYSIS

The following evaluation entitled "Relationship of LCDC Goals and Planning Unit Goals" was prepared to show the interrelationships between the LCDC goals and the goals of the Mt. Hood Planning Unit. Each interagency goal or major planning provision directly or indirectly supports at least two of the fourteen statewide goals. Federal and regional goals are consistent with those of the Planning Unit.





















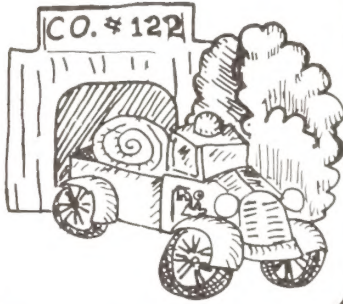

The relative effectiveness of the three planning alternatives in achieving or complying with the LCDC goals and related Planning Unit provisions has been summarized in the following chart entitled "Alternatives Evaluation." With the exception of Environmental Capacity, each of the goal categories is comprised of a single state goal and associated interagency goals (see Figure ). The key for the general ratings of how well each alternative supports the goals is: ● = strong support; ◐ = moderately supportive; and ○ = weak or uncertain support.

Rationale for the ratings is presented in the text following the chart.



# GOALS ANALYSIS

Figure 32

	<b>MT. HOOD INTERAGENCY GOALS → POLICIES</b>	Protect the Mountain area as a unique resource plan in accord with its capacity for sustained use	
	1 Insure Citizen Participation		
	2 Establish a Planning Process		
	3 Preserve Agricultural lands		
	4 Conserve Forest Uses & Lands		
	5 Conserve Open Spaces, Natural Scenic Resource		
	6 Improve Air, Water, land Resources Quality		
<b>STATE PLANNING GOALS → L.C.D.C</b>	7 Protect From Hazards		
	8 Satisfy Recreational Needs		
	9 Diversify & Improve the Economy		
	10 Provide For Housing		
	11 Plan For Efficient Public Services		
	12 Provide For Economic, Safe Transportation		
	13 Conserve Energy		
	14 Establish Urban Growth Boundary		

## Relationships of State and Planning Unit Goals

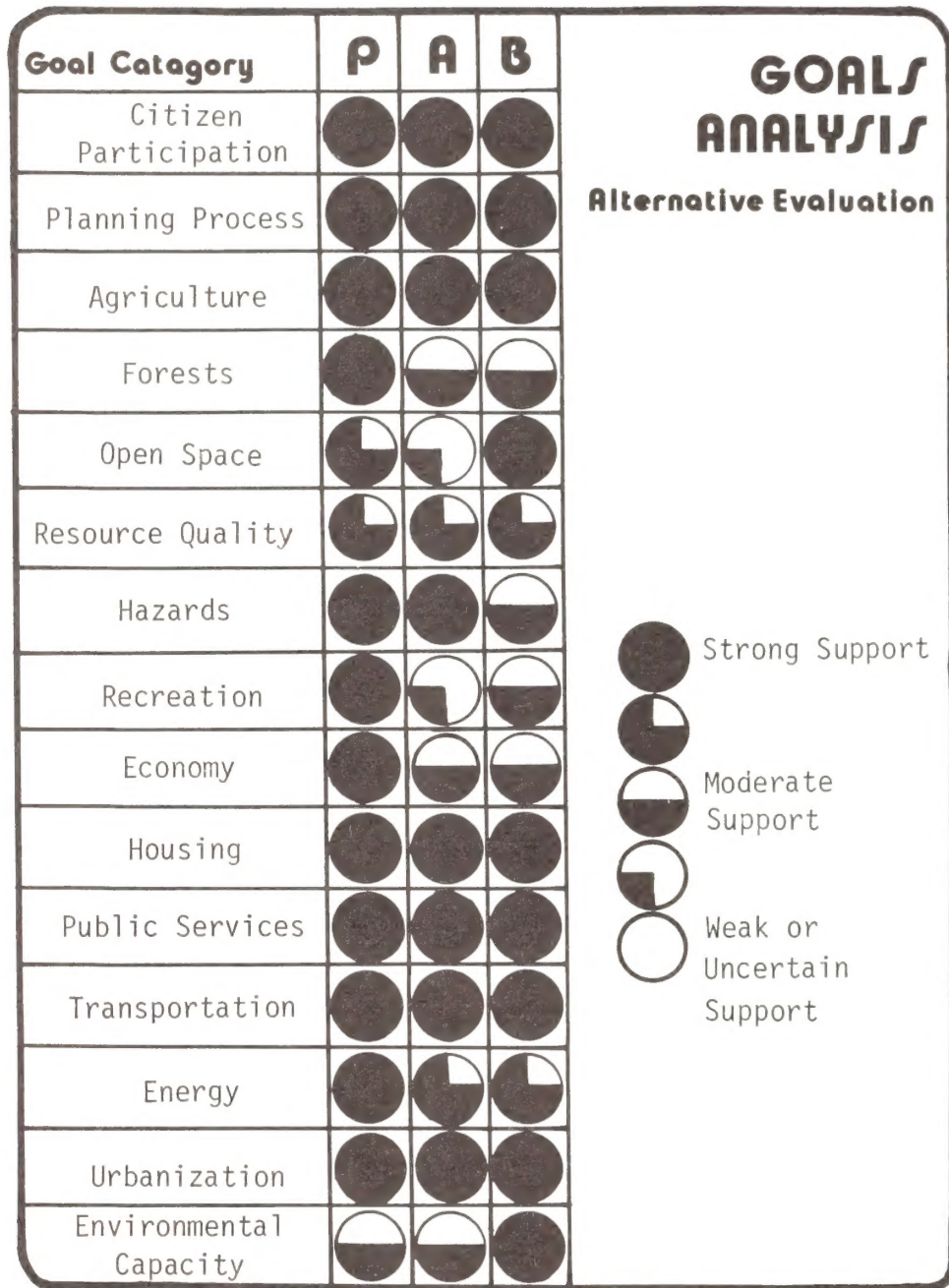
Recognize land as a resource & allow no one dominant use	Provide varied recreation opportunities	Protect wilderness	Maintain suitable forest lands for timber management	Protect & enhance scenic landscape	Protect air, water, & soil quality	Maintain water supply	Protect water-related resources (e.g. wetlands)	Identify & protect historic features	Protect & provide for wildlife	Conserve suitable farmland	Protect lives & property from natural hazards	Insure compatibility of energy & minerals development	Provide for long-term economic opportunity	Maintain community character and separation	Provide for balanced transportation	Provide for housing variety & adequate, coordinated services	Development priority for established areas.	Implement the plan effectively and fund	Provide citizen involvement opportunity
●	●																	●	●
●	●																	●	●
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● Interagency goals and planning provisions which directly support state goals

◐ Interagency goals and planning provisions which indirectly support the state goals



**Figure 33**



## GOAL CATEGORY #1 - CITIZEN INVOLVEMENT

Alternative(s) best meeting the Citizen Involvement Goals: All three alternatives.

Reasons: The Proposed Plan and Alternatives all assume a continuing opportunity for citizen involvement consistent with the scale and complexity of the Mt. Hood area. County citizen involvement programs will be used as the chief means of involving area residents in planning decisions.

## GOAL CATEGORY #2 - PLANNING PROCESS

Alternative(s) best meeting the Planning Process Goals: All three alternatives.

Reasons: All alternatives provide for a continuation of planning in the Mt. Hood area. They would all permit the various agencies to form a positive structure of coordination and monitoring during plan implementation within a common policy framework. The structure would not require relinquishment of territory or authority by any one agency, but would include cooperative political and/or administrative participation. The interagency plan in itself is an extension of a planning process begun some time ago and a refinement of existing, adopted land use policy. A technical review provision for major development proposals would be maintained as an ongoing, cooperative exchange of interagency expertise.

## GOAL CATEGORY #3 - AGRICULTURAL LANDS

Best alternative: All three alternatives.

Reasons: Each alternative will retain a high proportion of the Planning Unit in a farm category, maintaining high agricultural production opportunities. This has the greatest potential in Hood River County. The alternatives have been designed to provide protection to the farm resource through proposed compatible land use zoning and classification which should provide for more equitable land valuation and taxes.

## GOAL CATEGORY #4 - FOREST LANDS

Alternative(s) best meeting the Forest Lands Goals: Proposed Plan

Reasons: The sustained timber production level of the Proposed Plan is nearly as high as Alternative A. The potential for higher yields available from other forest reserves on National Forest lands exists if needs dictate. The Proposed Plan also provides for a greater variety of forest recreation experiences and high productivity of forest resources, i.e. wood, water, fish and wild game.



Other Alternatives: Alternative B retains a high percentage of lands in a forested condition but results in a significant loss in production from Alternative A by placing more of the National Forest land in a recreation reserve category.

#### GOAL CATEGORY #5 - OPEN SPACE, SCENIC AND HISTORIC AREAS AND NATURAL RESOURCES

Alternative(s) best meeting the Open Spaces, Scenic and Historic Areas and Natural Resources Goals: Alternative B

Reasons: Alternative B would retain the largest amount of land in an unroaded condition with the least man induced impact of any of the alternatives. The comparative reduction in man's activity level would have favorable influences on wildlife, better protect historic sites and retain more of the visual character. All the alternatives offer approximately the same area in open space as recreation, forest and community areas. The difference is the potential quality of experience if these open space lands are designated for lower intensity uses.

Other Alternatives: The Proposed Plan is second to Alternative B. The amount of open space is higher than Alternative A. Opportunity for enhancement of historic sites, wildlife habitat and scenic quality would be available. Management of vandalism problems should also improve.

#### GOAL CATEGORY #6 - AIR, WATER, LAND AND RESOURCE QUALITY

Alternative(s) best meeting the Air, Water, Land and Resource Quality Goals: All three alternatives

Reasons: All alternatives are strong in this area with the recently adopted county plans. Alternative B is slightly better due to limited timber harvest on the National Forest. However, the resource damage risk from fire would be highest.

#### GOAL CATEGORY #7 - HAZARD PROTECTION

Alternative(s) best meeting the Hazard Protection Goals: Proposed Plan and Alternative A

Reasons: All alternatives have been developed using land suitability maps which delineate geologic hazards, soil hazard areas, floodplains and wetlands. Since the development of urban resort and residential areas will be the same in all alternatives, the key difference will be the access and timber harvesting. Control of fire fuels and fire access are best in the Proposed Plan and Alternative A. Though Alternative B would have the highest risk for significant wildfires, it would have the least impact on soil resources (e.g. mass wasting) associated with road construction and logging.

#### GOAL CATEGORY #8 - RECREATION

Alternative(s) best meeting the Recreational Goals: Proposed Plan

Reason: The Proposed Plan provides opportunity for the most balanced and land efficient means of achieving a variety of recreational experiences. This is based on provision for: (a) a variety of forest land classes available for dispersed recreation; (b) additional development of ski areas, golf courses, etc; (c) additional family oriented recreation opportunities; (d) developed camping in areas such as Wildwood and Trillium Lake; and (e) community recreation areas.

Other Alternatives: Alternative B provides the greatest opportunity for recreational experience associated with the natural environment. Alternative A emphasizes more highly developed recreation. All alternatives will provide a basis for maintaining a variety of recreation. The principal differences lie in the quality, quantity and type of experience available.

#### GOAL CATEGORY #9 - ECONOMY

Alternative(s) best meeting the Economy Goals: Proposed Plan

Reasons: The principal economic sources within the Planning Unit are recreation/tourism, timber production and agriculture. The strongest of these forces is recreation/tourism. The Proposed Plan has as its principal purpose, a provision for strengthening each of these economies without significant loss in the environmental quality upon which each is dependent. Additional expansion in Developed Recreation Areas with opportunity for added accommodations for tourists for example, will help stabilize the use period. Maintenance of the principal timber producing lands will increase production and returns to the public. Concentration of housing within designated service areas will provide improved services at lower costs per unit.

The retention and designation of areas for agriculture will provide opportunities for further improvements in production and reduce taxes on the land. Protection of streamside zones, floodplains and provision for fish rearing areas will provide opportunity for an increase in returns to the state for anadromous fish production.

Other Alternatives: Alternative B has more limited economic opportunities because less area is available for developed recreation, less area is available for timber harvesting and geothermal power development is not permitted. An eventual reduction of high quality recreation experience could also develop due to concentration in limited areas.

#### GOAL CATEGORY #10 - HOUSING

Alternative(s) best meeting the Housing Goals: All three alternatives



Reasons: Housing options are the same under each alternative. However, since Alternative A and the Proposed Plan permit additional facilities for recreation on federal lands, this would support housing development in the private sector.

#### GOAL CATEGORY #11 - PUBLIC SERVICES

Alternative(s) best meeting the Public Services Goals: All three alternatives

Reasons: All alternatives deal effectively with the need for essential services, dovetailing these needs with the land use element and other planning provisions.

#### GOAL CATEGORY #12 - TRANSPORTATION

Alternative(s) best meeting the Transportation Goals: All three alternatives

Reasons: The supporting transportation facilities will be designed for each alternative to accommodate the collective use in the area in an environmentally sound manner. The designs will provide safe, efficient and dependable transportation options.

#### GOAL CATEGORY #13 - ENERGY CONSERVATION

Alternative(s) best meeting the Energy Conservation Goals: Proposed Plan

Reasons: The Proposed Plan provides for concentrating growth in developed service areas, thereby conserving energy through more efficient services. It also allows the potential for developing energy from geothermal resources to be sought out so that if an economically viable resource is present, it can be tapped.

Other Alternatives: In the event that exploration would reveal that the area does not have suitable geothermal sources, Alternative B would be the strongest since the consumption rates would be lowest.

#### GOAL CATEGORY #14 - URBANIZATION

Alternative(s) best meeting the Urbanization Goals: All alternatives

Reasons: Urban and urbanizable boundaries are defined within reasonably specific limits for all alternatives. The densities are adequate to support the necessary, complementing service levels with the established areas and those with existing development problems receiving priority in the timing and provision of public services. Communities could be more distinct, while the direction for adjoining rural and natural resource areas would be more definitive and in keeping with carrying capacity principles.

## GOAL CATEGORY #15 - ENVIRONMENTAL CAPACITY

Alternative(s) best meeting the Environmental Capacity Goals: Alternative B

Reasons: Alternative B has lower levels of development and environmental alteration than the Proposed Plan and Alternative A. The Proposed Plan would have more impact upon the elements of environmental capacity than Alternative B but less than Alternative A. Though the housing options remain the same, the areas available for Developed Recreation and timber harvesting cause the principal impact upon the environmental quality.

## RPA ALLOCATION ANALYSIS

The National Forest RPA land allocations are tentative. However, the trends are significant and do provide some direction on what allocations are needed in Area 6 (Willamette, Mt. Hood, Siuslaw and Gifford Pinchot National Forests).

Figure 33 shows the relationship between RPA land allocation targets and the present allocation for Area 6 of the Pacific Northwest Region. The chart also compares these to the present allocation for the Mt. Hood National Forest.

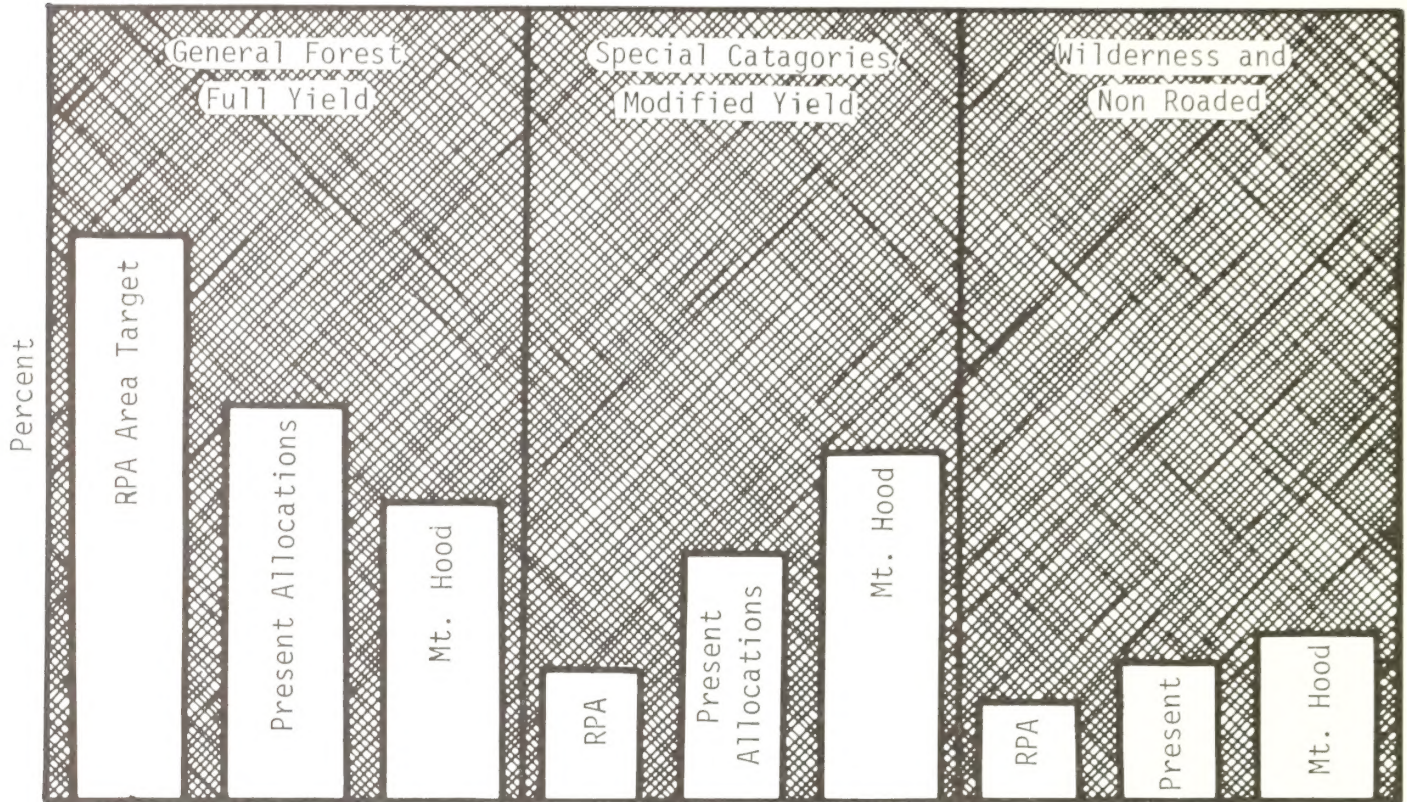
In Figure 33 the effects of each forest allocation alternative is described.

The Proposed Plan will not substantially change present allocation of General Forest in Area 6 which is in short supply. The area in roaded recreation is reduced slightly, an allocation which is significantly in excess, and slightly increases the unroaded area classification which also appears to be slightly over the RPA goals.



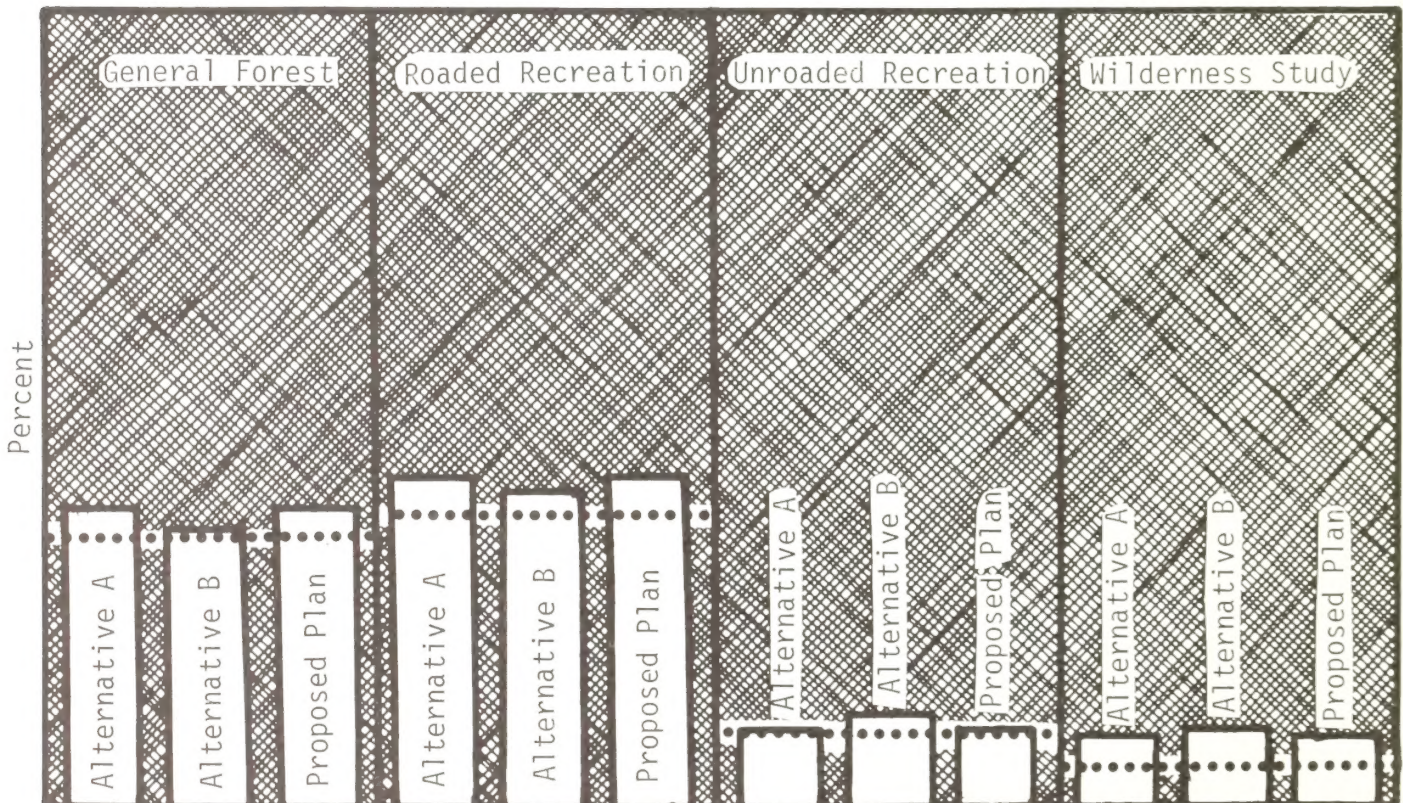
**LAND ALLOCATION**  
**RPA Target**  
**Versus**  
**Present and Proposed**

**Figure 34**



**Alternative Effect**  
**on Forest**

..... Forest Without Mt. Hood Planning Unit







**Alternative A**





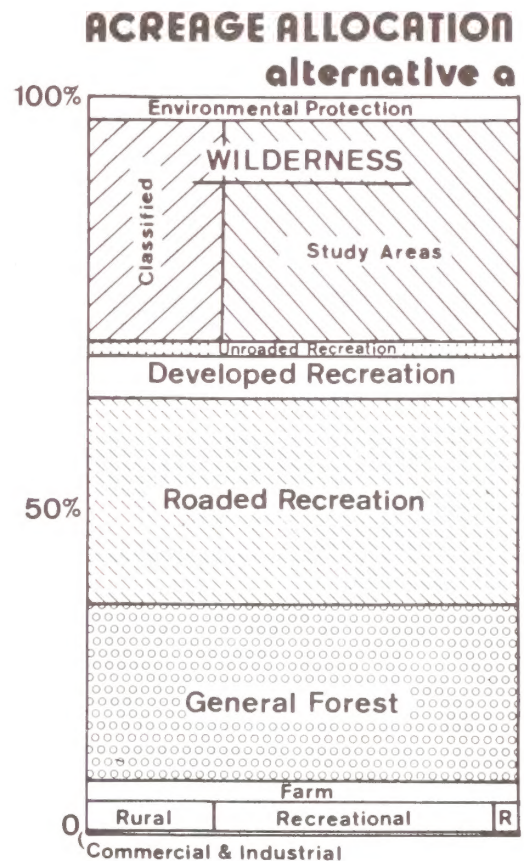
## ALTERNATIVE A

Perspective. Under Alternative A, the existing management direction on Bureau of Land Management and National Forest lands would continue. The direction on private, county and state lands would be in conformance with the recently adopted Mt. Hood Community Plan for Clackamas County and the Hood River County Mt. Hood Planning Unit Plan.

On federal lands, Alternative A retains the present emphasis on timber management, developed and dispersed recreation and proposes no change in the designated wilderness study areas.

No changes have been made in this alternative to make the designations on federal lands respond to recent amendments in the county planning direction or public comment on the Draft Environmental Statement for the Mt. Hood Interagency Plan.

<u>Area Designation</u>	<u>Acres</u>
Environmental Protection	4,700
Wilderness, Wilderness Study	47,600
Unroaded Recreation	3,900
Developed Recreation	7,300
Roaded Recreation	44,500
General Forest	38,300
Farm	3,900
Housing	7,500
Commercial, Industrial and Special Site	300
<b>TOTAL</b>	<b>158,000</b>





ALTERNATIVE A - NARRATIVE DESCRIPTION

## AGRICULTURE AND FORESTRY

- Both agriculture and forestry are emphasized.
- The area allocated for agriculture and forestry on private, county and state lands are the same as the Proposed Plan and are subject to the same management constraints as discussed in the Proposed Plan. Allocations on federal lands vary between alternatives.
- Available land for forest production on all lands in the Planning Unit will be available for full yield timber production with the exception of streamside corridors, unstable soil areas and wetland buffers. Additional exceptions will occur on Forest Service and BLM lands in recreation travel corridors and hillsides visible to community areas. A full range of silvicultural practices will be used, designed to keep sites productive and trees in a healthy condition. Soil erosion and slippage will be avoided.

## HOUSING, COMMERCIAL AND INDUSTRIAL

- Housing development and density, provision for overnight and resort accommodations and commercial and industrial development will all be the same as described in the Proposed Plan.
- Refer to the Proposed Plan for the community land use description (Map 16) and the environmental capacity analysis (Figure 30).

## WILDERNESS AND PRIMITIVE RECREATION

- Zigzag Mountain and Mt. Hood Wilderness Study Areas will provide opportunities for addition of up to 33,500 acres to the existing Mt. Hood Wilderness (14,100 acres). A permit system to regulate use within the present Mt. Hood Wilderness could be necessary.
- In designated wilderness, trails will be provided to protect wilderness values. Those in conflict are to be abandoned.
- Outside the designated wilderness, existing trails will be maintained and additional trails provided. Approximately 3900 acres will be designated for primitive or dispersed outdoor recreation activity in a natural or near-natural environment.
- Additional areas with more convenient public access would be provided for such activities as primitive car camping, hiking, fishing, hunting, berry picking, wood cutting and roadside viewing. Some 82,300 acres of classified General Forest and Roaded Recreation lands would be available for this purpose.
- Designated areas for off road motorized vehicles (ORV) will be shown on Forest Service and BLM planning maps and posted with signs.

## CONCENTRATED RECREATION AND SKIING

- Developed recreation and downhill ski permit areas will remain the same size on National Forest lands and increase on private lands. The total areas designated for these activities is approximately 7300 acres.
- Any proposed expansion of facilities in Forest Service ski permit area will be reviewed through a separate environmental analysis process following NEPA requirements.
- The existing Wildwood recreation area will be expanded with additional day use facilities and trailhead/bridge connection to the Plaza Trail.
- Timberline Lodge will provide overnight accommodation capacity for 250 persons. Downhill skiing will continue with an increase in lift capacity and new summer ski area on Palmer Glacier. A day lodge will be added, governed by the concept of balanced on-site capacities. The main lodge will be managed under a stronger historic preservation program than in the past.

## WILDLIFE AND FISHERIES

- Approximately 56,200 acres will be designated for Environmental Protection, Wilderness, Wilderness Study and Unroaded Recreation which protect fish and wildlife as well as conservation and scenic recreation values.
- A gradual decline in the availability of winter range will occur due to demands for other uses and harassment from people and dogs will increase. Development, timber harvest and roads could cause an increased alteration of existing wildlife habitat and species composition.
- Minimum streamflow recommendations for aquatic fish habitat will be met and the free flowing character of streams will be protected.

## MINERALS, ENERGY AND POWER

- New sites for rock quarries would be permitted through special permits on public and private lands. Existing rock quarry sites, such as Robinson, White River and Brightwood will continue to be used. Performance standards and reclamation plans would be required.
- Public lands would continue to be available for energy development. If there is a known potential for geothermal development, then development proposals would be evaluated case-by-case with analysis that follows NEPA requirements.
- Proposals for new utility corridors would be evaluated on a case-by-case basis. Existing power transmission corridors (e.g. Bonneville Power Administration) will be retained. No new corridors are planned. Existing rights-of-way would be expanded as needed.



- Gasoline use and domestic consumption of home fuels could increase significantly due to expanded development and higher traffic volumes. However, energy efficient construction will be encouraged and development will be concentrated.

#### TRANSPORTATION

- Highway 26 would be changed to a four lane from Brightwood to Timberline Road and an improved two lane highway from Timberline Road to the intersection of Highway 35 as projected population levels are approached. Highway 35's present design capability, with the exception of a few major intersections, may not be affected.
- Protecting and enhancing the scenic character of the highway corridor will be based on existing plans and implementation through review of individual projects.
- Increased parking capacity at ski areas and resorts would be reviewed on a project-by-project basis.
- The local road network would be expanded and improved in expanded use areas. In private development areas, private maintenance would be encouraged. There will be an increase in the timber support road system on public and private lands.

#### SERVICES AND PUBLIC FACILITIES

- Improvement and expansion of services and public facilities will be the same as the Proposed Plan.
- Refer to the Proposed Plan, Figure 28, for capacities by community and proposed service areas.

#### LAND CLASSIFICATIONS, ADMINISTRATION AND PUBLIC COSTS

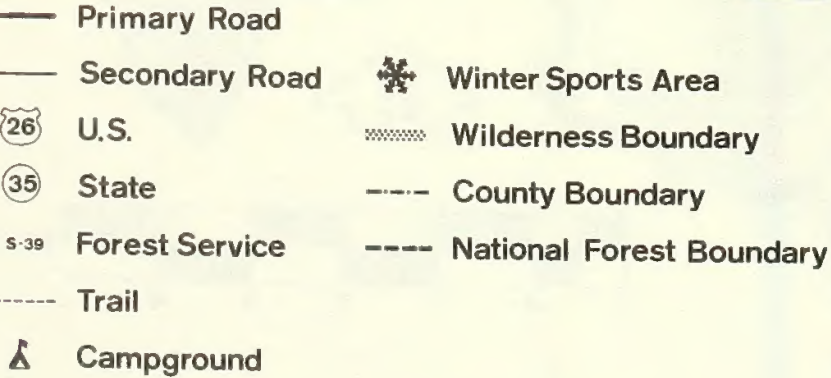
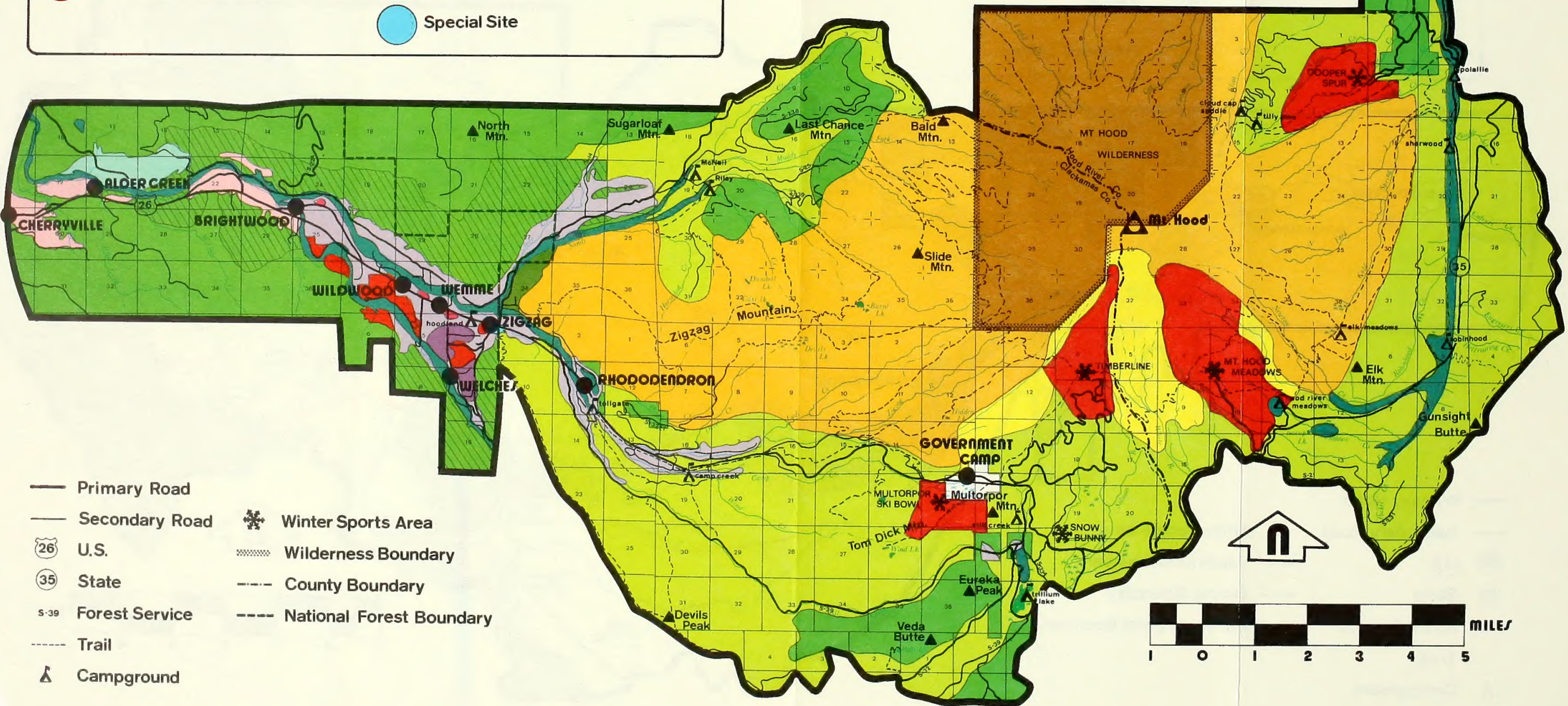
- Lands classifications established in County Comprehensive Plans will be used as in the Proposed Plan description.



# MT. HOOD PLANNING UNIT

## ALTERNATIVE A

Map 18





# MT. HOOD PLANNING UNIT

A

Water System

Water and Sewer System

ORV Area

ORV by Permit Only

All Other Areas Closed to Off Road Vehicle Use

Proposed Road

Proposed Bike Route

Proposed Trail

F

Firestation

F

Proposed Firestation

S

School

S

Proposed School

The map displays the Mt. Hood Planning Unit, a region in Oregon. It features a grid system with numbers 1-36 along the top and bottom, and letters A-D along the sides. Key geographical features include Mt. Hood, Mt. Hood Meadows, Timberline, and various mountain peaks like Sugarloaf Mtn., Last Chance Mtn., Bald Mtn., Slide Mtn., and Eureka Peak. The map shows a network of roads, including primary roads (solid lines) and secondary roads (dashed lines). It also highlights proposed infrastructure: roads (solid red lines), bike routes (dotted red lines), and trails (dashed red lines). Shaded areas represent different land management zones: yellow for Water System, orange for Water and Sewer System, light gray for ORV Area, and green for ORV by Permit Only. Other symbols include firestations (F in a circle), schools (S in a circle), winter sports areas (snowflake icons), wilderness boundaries (dotted lines), county boundaries (dashed lines), national forest boundaries (long-dashed lines), and campgrounds (triangle icons). A scale bar at the bottom right indicates distances from 0 to 5 miles. A north arrow is located near the bottom center.

Primary Road

Secondary Road

26

U.S.

35

State

S-39

Forest Service

Trail

A

Campground

Winter Sports Area

Wilderness Boundary

County Boundary

National Forest Boundary



ENVIRONMENTAL IMPACTS - ALTERNATIVE A

## MICROCLIMATE

The types of impacts discussed under the Proposed Plan will also occur with Alternative A. Differences between the level of impact each alternative would have are primarily related to the amount of area which will be in managed timber rotation cycles. Because Alternative A identifies more area for timber management than the other alternatives, its potential for micro-climatic impacts is greater.

## GEOLOGY, MINERALS AND ENERGY

Potential for mass wasting will be greatest under Alternative A because more area will be impacted by road construction and timber harvest than the other alternatives. Alternative A will have 5500 more acres in General Forest and Roaded Recreation than the Proposed Plan and 30,900 acres more than Alternative B.

Potential impact from mining of minerals and rock quarries would be similar to the Proposed Plan, except that more rock would be required to construct the additional roads required under Alternative A. Existing quarry sites will continue to be used and performance standards and reclamation plans will be required.

Potential impacts from geothermal development and utility corridors will be similar to the Proposed Plan, but may affect a greater area because the Proposed Plan and Alternative B reserve more area for some type of Wilderness or roadless area management.

## SOILS

The impact on soil resources will be lowest on 60,100 acres, with slight to moderate erosion from trail and campsite development. There will be some erosion from farm operations and soil compaction around stock watering areas.

Erosion from roads and soil compaction from logging systems and developed recreation sites will occur on 90,100 acres. These impacts have been rated low to moderate.

High to severe impacts may occur on the 7800 acres proposed to be more highly developed. The degree of soil damage will depend upon the development intensity. We can expect high erosion during construction, drainfields, impervious surfacing, topsoil removal and compaction from roads, utilities and building siting.

A more detailed assessment of the impact on soil resources may be found in the Exhibits H and J.



## WATER QUALITY AND QUANTITY

Alternative A would meet State Water Quality Standards; some increase in sedimentation and nutrient release in streams will occur due to increased timber harvest levels, road building and development. These effects will occur primarily in areas under intensive agriculture or community development which would be essentially the same under all the alternatives. Alternative A has the most area affected by timber management on federal lands.

On private, county and state forest lands, the impact will be the same in all alternatives. Enforcement of the State Forest Practices Act will reduce the impact of logging on streams. On federal lands, controls on nonpoint pollution will be stronger because land suitability analysis and resource information will be used to guide timber management practices.

Impacts from natural disasters and impacts upon groundwater would be similar to those described in the Proposed Plan.

## AIR QUALITY AND NOISE

Air quality and noise impacts and mitigating measures will be the same as the Proposed Plan, except that on federal lands, more impacts related to timber management (i.e. more slash burning, log haul traffic and road building) will occur. These may affect nearby community areas depending upon their location and the length of time involved.

## VEGETATION

Under Alternative A, approximately 36 percent of the Planning Unit will be managed in a natural or near natural successional cycle. On federal lands, more area will be allocated to timber management and less to unroaded recreation than the other alternatives. Impacts on vegetation on other lands will be essentially the same in all alternatives.

Because Alternative A will have the least amount of area devoted to wilderness and roadless types of management and retains existing ski permit area boundaries, primitive and developed recreation activities will be concentrated in a smaller area than the Proposed Plan. Therefore, impacts on the vegetation by recreationists in these areas will probably be higher, particularly along popular hiking trails and in Developed Recreation areas on federal lands.

## WILDLIFE AND FISHERIES

Potential impacts on wildlife would be similar to the Proposed Plan but more significant in intensity. Alternative A includes 4200 acres less than the Proposed Plan in various types of wilderness management, environmental protection and unroaded recreation areas. This affects wildlife habitat because intensive timber management affects species dependent on snag habitat and old growth forest. Other species such as deer and elk are favored by the plant communities generated after logging but populations are limited by other factors such as the availability of winter range and harassment.

As in the Proposed Plan, the most significant impact on wildlife will be the continuing increase in the human population. As the number of residents and visitors increase, wildlife diversity will decrease, particularly in the Highway 26 corridor. Populations of wildlife more compatible with residents will increase (e.g. crows, starlings, robins, chipmunks and mice) while less tolerant species are reduced.

Impacts on fisheries will be the same as the Proposed Plan except that sedimentation and nutrient levels would be somewhat higher under Alternative A and thus, result in somewhat less favorable habitat conditions.

#### AGRICULTURE

Impacts will be the same under all alternatives.

#### TIMBER MANAGEMENT

Alternative A identifies about 78,710 acres for timber production and will retain 56,200 acres of forest and nonforest land in an unroaded condition on federal lands. There will be 44,500 acres in designated Roaded Recreation where scenic and recreational objectives will reduce the timber cut from 16 to 43 percent.

Impacts on private, county and state forest lands will be the same for all alternatives, but will vary on federal lands. Revenues and employment derived from timber harvest are highest under Alternative A because it has the largest area proposed for harvest.

Although present plans do not address aerial logging, areas in Still Creek and forests east of Hood River may of necessity be logged by aerial systems.

The following table describes the timber allocations and revenues under Alternative A.

Timber	Units	Federal	State/County	Private
Comm forest	Acres	57,480	3,800	17,430
Low level mgmt	MBF/yr	16,600	1,300	6,000
Timber value	\$/yr	2,761,520	215,228	993,360
County tax rtn	\$/yr	564,872	167,878	94,210
Direct jobs	# Empl	93	7	34
Payroll values	\$/yr	4,743,000	357,000	1,734,000
Intensive level	MBF/yr	21,400	1,700	7,800
Timber value	\$/yr	3,560,600	281,450	1,291,370
County tax rtn	\$/yr	881,638	279,410	94,210
Direct jobs	# Empl	120	10	44
Payroll values	\$/yr	6,120,000	510,000	2,244,000



Note: The annual harvest estimates are based on managed yield tables and are valid for comparative purposes only. These estimates should not be construed as being an annual harvest quota. This comparison reflects the potential production of the area based on site potential and current technology.

Refer to Impacts discussions on Soils, Water Quality, Vegetation, Wildlife, Trails and Roads, and Visual Resources.

## RECREATION

Under Alternative A, approximately 7300 acres are designated for concentrated recreation and skiing and 3900 acres are designated as Unroaded Recreation.

The area included in Developed Recreation on private lands is the same on all alternatives. Alternative A includes less area in Developed Recreation than the Proposed Plan.

The types of impacts from recreation described under the Proposed Plan would also occur in this alternative, but the impacts will be more significant in unroaded recreation areas because the use would be concentrated in a smaller area. Impacts from Developed Recreation areas could be lower than the Proposed Plan because less area is allocated to this use, the level of facility development which will occur in these areas will be determined through a separate environmental analysis under the NEPA process on federal lands.

## WILDERNESS AND ROADLESS AREAS

Alternative A designates 51,500 acres of the existing total of 66,200 acres of roadless areas for some type of roadless management. This area includes the 14,100 acre Mt. Hood Wilderness and 33,500 acres in the Zigzag Mountain and Mt. Hood Wilderness Study Areas designated by Congress.

Impacts and mitigating measures in these areas will be the same as described in the Proposed Plan.

## TRANSPORTATION - STATE SYSTEM

Transportation impacts and mitigating measures will be similar under all alternatives, but may vary in intensity with the level of timber harvest, geothermal development and developed recreation facilities which occur. These activities may affect rates of population growth and commercial and residential development in the Planning Unit and hence, may accelerate the rate at which the highway capacity is reached.

Under Alternative A, log haul traffic on the highways would be greatest but the potential impact from additional ski area and geothermal development is not known because no decisions have been made regarding additional development except at Timberline Lodge.

## FOREST SERVICE ROADS AND TRAILS

There are no major Forest Service roads proposed under this alternative. The approximately ten miles of roads which are proposed are primarily extensions of existing roads and in most cases, are very short sections which are necessary for completing an existing system. The 52 miles of proposed trails include a bicycle trail and a low elevation hiking trail. This alternative will include more short spur roads than either the Proposed Plan or Alternative B. The roads which are proposed have been laid out in areas which have suitable soil and terrain types.

Alternative A has greater potential for biological impacts than the Proposed Plan or Alternative B, primarily because additional spur road systems may be built. Those impacts would be the increasing of foot and vehicular traffic through areas which were previously unimpacted. This would produce wildlife harassment and its resultant reduction in wildlife diversity, the potential detrimental impact of foot traffic on vegetation, soil compaction, blowing dust, temporary noise and some possible soil movement. Social benefits would occur from the development of the roads and trails under this alternative. Scenic values may be improved through revegetation and reshaping of some existing roads, as well as the new proposed roads. Roads will assist in fire management and recreational access. Additional trails will provide a means for dispersing recreation use.

## FIRE MANAGEMENT

Potential for structural fires will be the same under all alternatives unless additional facilities are permitted under the Proposed Plan's larger Developed Recreation boundaries.

In comparison to the other alternatives, Alternative A has about the same potential for serious wildfires as the Proposed Plan, but significantly less potential than Alternative B.

The potential for wildfires will be reduced in Alternative A through fuel reduction in the area available for harvest and improved access to allow prompt suppression. Potential fire risk associated with roads and timber harvesting will be increased while risks associated with trail use will be reduced. However, during periods of extreme risk, roads may be closed other than for fire patrols to reduce the risks from recreationists traveling along forest roads.

## VISUAL RESOURCES

Major types of impacts on visual resources are similar to those described under the Proposed Plan. Impacts and mitigating measures on private lands will be the same for all alternatives. However, on federal lands, impacts vary significantly. Alternative A has the largest impact on scenic quality because more lands are included in the General Forest and Roaded Recreation categories.



## CULTURAL RESOURCES

Alternative A has the greatest potential for adverse impacts on cultural resources due to higher timber harvest levels and potential development of additional ski area and geothermal facilities.

It is possible that some as yet unidentified sites may inadvertently be damaged during ground disturbing activities.

The Project Planning Process for any ground disturbing activities on federal land or by federally funded projects will include an on-the-ground inventory of cultural resource sites, districts, objects and structures as required by Executive Order 11593. Compliance with 36 CFR 800 procedures will be documented in the Project Environmental Analysis Report (EAR).

The Clackamas County Zoning Ordinance for recreational/residential (R-R) district, Section 22, states that effects of historic properties will be determined and evaluated as a part of each major development plan within this zone.

## SOCIAL

Population and Community Identity and Growth Development. Differences in allocation of federal lands may affect the character of the mountain area communities by influencing rates of population growth and development on private lands. Even though all the alternatives are the same on private lands, Alternative A would tend to encourage the rate of growth less than the Proposed Plan and more than Alternative B. The orientation to timber management on federal lands in Alternative A will probably not stimulate growth as much as the more diverse recreational opportunities and higher scenic quality under the Proposed Plan. Both the Proposed Plan and Alternative A would also leave the option of geothermal development open which could create significant or minimal impacts, depending on the identification of the resource and type of development determined to be acceptable.

Housing. Housing needs would be similar to those described in the Proposed Plan.

Employment and Occupations. Employment characteristics will be similar to the Proposed Plan. Though a slightly higher percentage would be involved in timber related jobs (i.e. there are 120 direct jobs in Alternative A and 115 under the Proposed Plan), the tourist/recreation second home development orientation of the west approach and agricultural/tourism orientation of the east approach will continue. Seasonal employment fluctuations will continue, though these fluctuations may be reduced by more intensive timber management (e.g. more thinning and brush treatment) and by diversifying the marketing of developed recreation facilities (e.g. bringing in conventions and other activities during the off season). These types of activities will create more jobs during periods of traditionally high unemployment.

Agriculture related employment will be protected through the county decisions to reserve existing farmlands for agricultural use, but continuing technological advances could reduce the number of jobs available.

As described in the Proposed Plan, additional employment opportunities will be available under this alternative. The positive impact on employment opportunities for women and minorities could be significant, particularly on the eastside if insufficient work is available in agriculture related jobs or individuals choose to change traditional employment patterns. Construction jobs will be an important activity until the area approaches proposed population and density levels.

Community Services. Community services impacts will be similar to those in the Proposed Plan.

Energy Consumption. Impacts will be similar but somewhat higher than those described in the Proposed Plan due to the larger area allocated for timber management and roads on federal lands. There would be potential for energy production if geothermal development projects are found acceptable.

## ECONOMIC ACTIVITY

Economic activity derived from nonfederal lands would be similar to the Proposed Plan. Although the impact of potential additional ski area facilities and geothermal development on federal lands could create significantly different economic impacts, the feasibility and potential for implementation of such developments is unknown.

The primary difference between alternatives is the area in which timber harvest is permitted on federal lands. Alternative A will provide a slightly higher return from federal lands than the Proposed Plan. Under Alternative A, a return to the counties from federal lands will range between \$664,872 and \$826,638 per year as opposed to \$511,632 to \$821,288 with the Proposed Plan and \$250,200 to \$492,788 under Alternative B, depending on the level of management used. Therefore, because counties depend on these federal funds for schools and roads, Alternative A will have the effect of keeping county taxes on private lands slightly lower than the Proposed Plan and significantly lower than Alternative B. Returns to the Federal Treasury will be highest under Alternative A which would affect in turn, federal tax rates.

Payroll values from federal lands would range between \$4,743,000 and \$6,120,000 under Alternative A and \$5,335,000 to \$5,865,000 under the Proposed Plan.







**Alternative B**





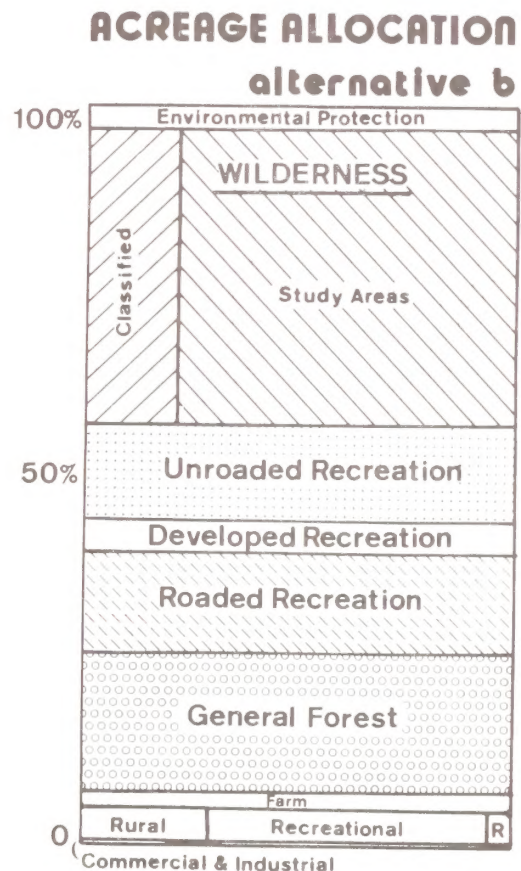
## ALTERNATIVE B

Perspective. This is the no action alternative. It reflects the concern expressed by persons desiring that the federal lands remain much as they are today. The direction on private, county and state lands would be in conformance with the recently adopted Mt. Hood Community Plan for Clackamas County and the Hood River County Mt. Hood Planning Unit Plan.

Alternative B will emphasize dispersed recreation and proposes that all roadless areas be included in Wilderness Study. Developed recreation areas would remain the same in size and less area would be allocated to timber management than the other alternatives.

The alternative was adjusted to respond to county planning direction and input regarding the Draft EIS.

<u>Area Designation</u>	<u>Acres</u>
Environmental Protection	4,700
Wilderness, Wilderness Study	66,200
Unroaded Recreation	16,600
Developed Recreation	7,000
Roaded Recreation	24,100
General Forest	27,800
Farm	3,900
Housing	7,500
Commercial, Industrial and Special Sites	300
<b>TOTAL</b>	<b>158,000</b>





## ALTERNATIVE B - NARRATIVE DESCRIPTION

### AGRICULTURE AND FORESTRY

- Both agriculture and forestry are emphasized in areas which are accessed by roads.
- The area allocated for agriculture and forestry on private, county and state lands are the same as the Proposed Plan and are subject to the same management constraints as discussed in the Proposed Plan. Allocations on federal lands vary between alternatives.
- Available land for forest production on all lands in the Planning Unit will include 54,070 acres. These areas will be available for full yield timber production with the exception of streamside corridors, unstable soil areas and wetland buffers. Additional exceptions will occur on Forest Service and BLM lands in recreation travel corridors and hillsides visible to community areas. A full range of silvicultural practices will be used, designed to keep sites productive and trees in a healthy condition. Soil erosion and slippage will be avoided.

### HOUSING, COMMERCIAL AND INDUSTRIAL

- Housing development and density, provision for overnight and resort accommodations and commercial and industrial development will all be the same as described in the Proposed Plan. Refer to the Proposed Plan for the community land use description (Map 16) and the environmental capacity analysis (Figure 30).

### WILDERNESS AND PRIMITIVE RECREATION

- In addition to the Zigzag Mountain and Mt. Hood Wilderness Study Areas, all roadless areas are proposed for wilderness study. All together, they will provide opportunities for addition of up to 52,100 acres to the existing Mt. Hood Wilderness (14,100 acres).
- In designated wilderness, trails will be provided to protect wilderness values. Those in conflict with those values are to be abandoned.
- Outside the designated wilderness, existing trails will be maintained and additional trails provided. The amount of area designated for unroaded hiking and camping is 16,600 acres.
- The trailhead for Ramona Falls Trail will be moved back a mile and a half to the end of the existing pavement.
- Additional areas with more convenient public access would be provided for such activities as primitive camping, hiking, fishing, hunting, berry picking, wood cutting and roadside viewing.
- Designated areas for off road motoried vehicles (ORV) will be shown on Forest Service and BLM planning maps and posted with signs.

- A policy of surveillance burning may be adopted in order to perpetuate the natural wilderness ecosystems, and as a means of preventing the abnormal accumulation of forest fuels.

#### CONCENTRATED RECREATION AND SKIING

- Designated areas for developed recreation and downhill skiing will be reduced slightly on National Forest lands and increase on private lands. The total area designated for these activities under Alternative B is approximately 7000 acres.
- Any proposed expansion of facilities in Forest Service ski permit areas will be reviewed through a separate environmental analysis process following NEPA requirements.
- No overnight accommodations would be considered at the Mt. Hood Meadows and Cooper Spur areas.
- Timberline Lodge will provide overnight accommodation capacity for 250 persons. Downhill skiing will continue with an increase in lift capacity and new summer ski area on Palmer Glacier and a day lodge will be added. The main lodge is to be managed under a stronger historic preservation program than in the past.
- The existing Wildwood recreation area would not be expanded.

#### WILDLIFE AND FISHERIES

- Approximately 87,500 acres will be designated for Environmental Protection, Wilderness, Wilderness Study and Unroaded Recreation which protect fish and wildlife as well as conservation and scenic recreation values.
- Available winter range will gradually decline due to demands for other uses and harassment from people and dogs will increase.
- Minimum streamflow recommendations for aquatic fish habitat will be met and the free flowing character of streams will be protected.
- Future roads across stream courses will provide for fish passage and consider facilities for fish stocking (i.e. access ramps).

#### MINERALS, ENERGY AND POWER

- Existing rock quarry sites such as Robinson, White River and Brightwood would continue to be used. Performance standards and reclamation plans will be required.
- Geothermal development would be considered an incompatible use within the Planning Unit.
- Energy consumption (gasoline, home fuels) will be less than the Proposed Plan or Alternative A.



- Gasoline use and domestic consumption of home fuels could increase significantly due to expanded development and higher traffic volumes. However, energy efficient construction will be encouraged and development will be concentrated.

#### TRANSPORTATION

- Generated traffic volumes indicate that only the first 3.5 mile section of Highway 26 between Wildwood and the Forest boundary would need improved capacity. Some intersection improvements above this junction such as Zigzag are needed, but highway capacities would probably be left at existing levels. Improvement in the vertical and horizontal curves of the section from the Timberline Highway to Warm Springs interchange section would be desirable.
- Protecting and enhancing the scenic character of the highway corridor is a high priority. Parkway design concepts will be considered. Highway 35 would need improvement at the Mt. Hood Meadows intersection but otherwise, its present design will be adequate.
- Increased parking capacity at ski and resort areas would not be encouraged. Additional emphasis would be placed on providing mass transit to accommodate peak recreation use.

#### SERVICES AND PUBLIC FACILITIES

- Improvement and expansion of services and public facilities will be the same as the Proposed Plan.
- Refer to Proposed Plan, Figure 30, for capacities by community and proposed service areas.

#### LAND CLASSIFICATIONS, ADMINISTRATION AND PUBLIC COSTS

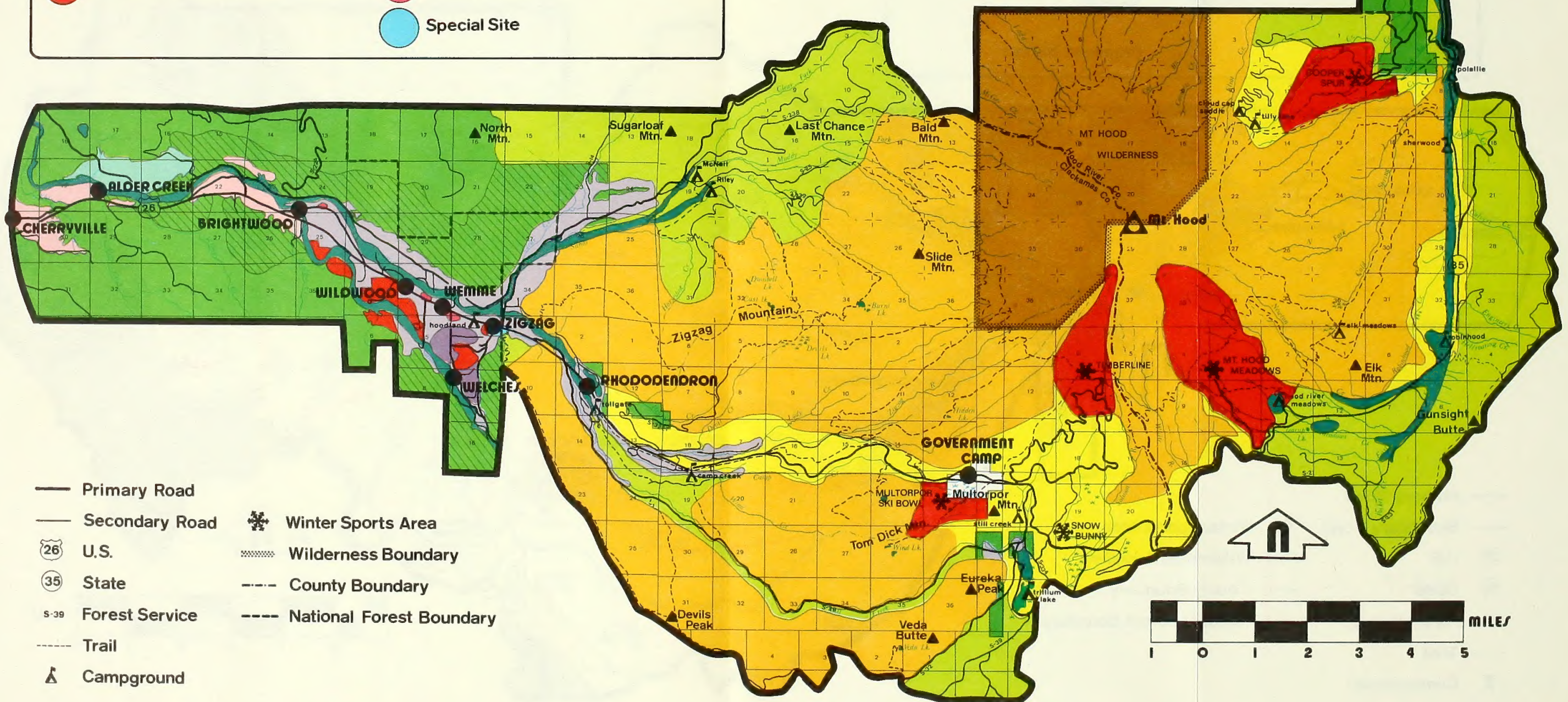
- Land classifications established in County Comprehensive Plans will be used as in the Proposed Plan description.



# MT. HOOD PLANNING UNIT

## ALTERNATIVE B

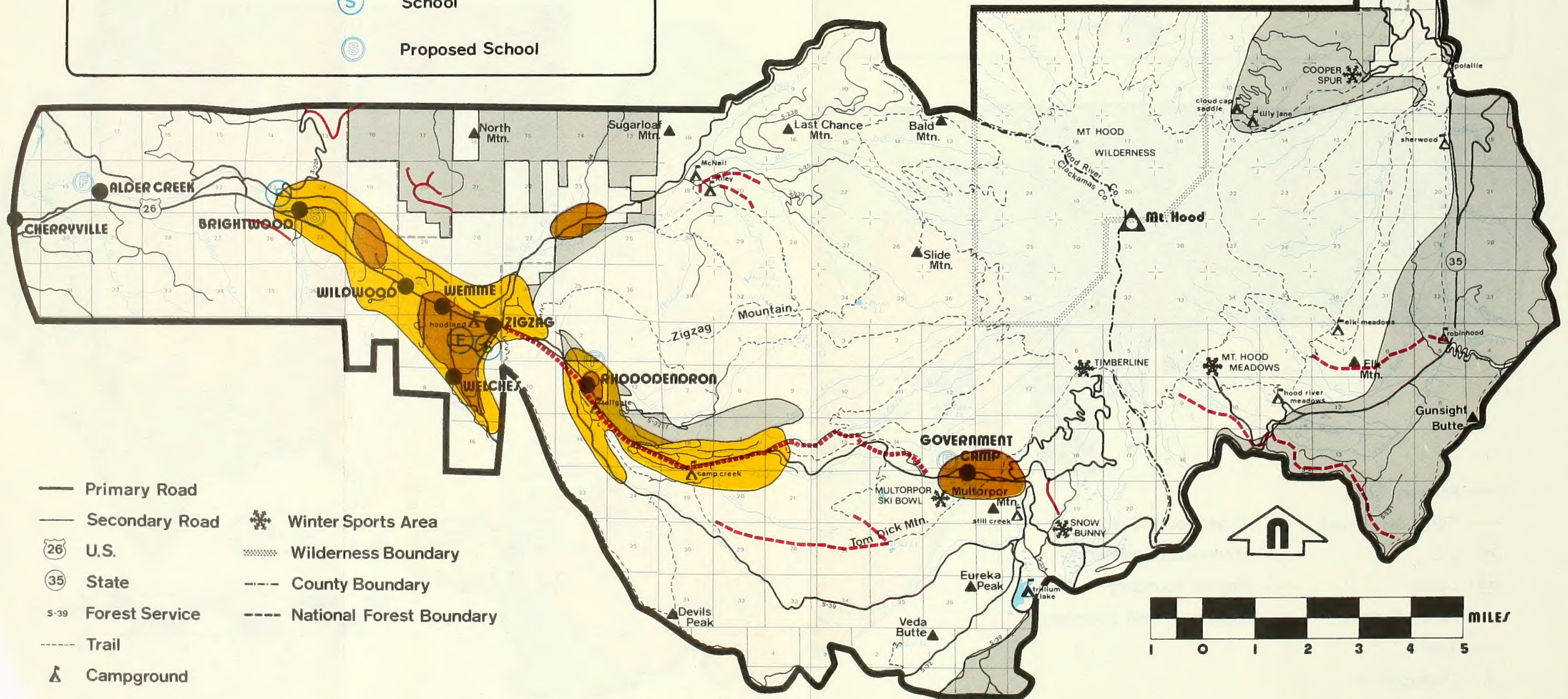
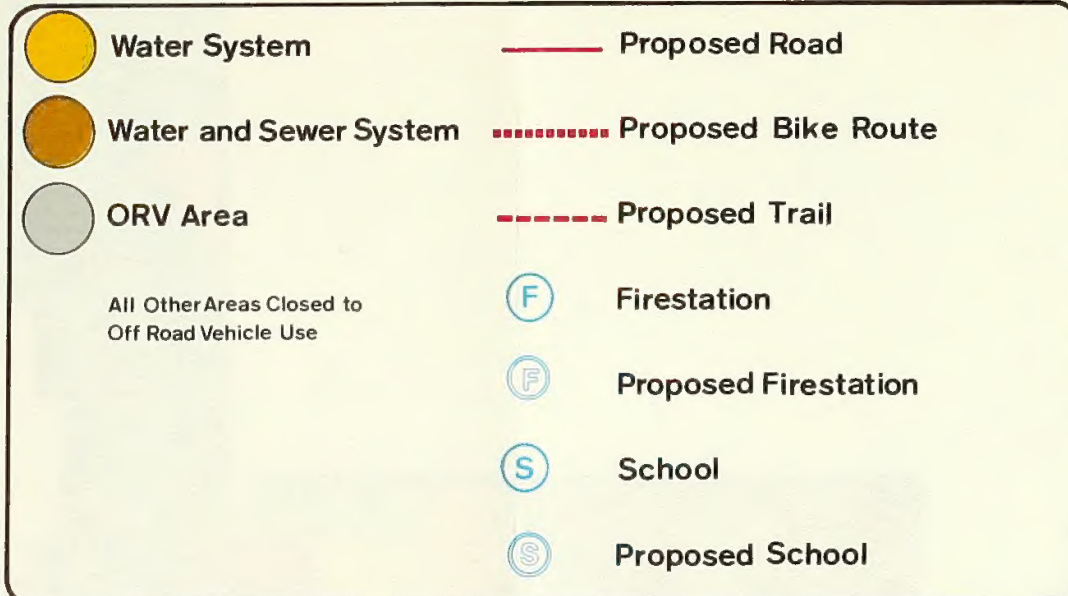
Map 19





# MT. HOOD PLANNING UNIT

B





ENVIRONMENTAL IMPACTS - ALTERNATIVE B

## MICROCLIMATE

The types of impacts described under the Proposed Plan will also occur with Alternative B. However, these impacts will be lower than the other alternatives because significantly less area will be in managed timber rotation cycles.

## GEOLOGY, MINERALS AND ENERGY

Potential for mass wasting will be lowest under Alternative B because the least amount of area will be impacted by road construction and timber harvest. Alternative B will have 25,400 less acres in General Forest and Roaded Recreation than the Proposed Plan and 30,900 acres less than Alternative A.

Impact from mining of minerals and rock quarries would potentially be lower than the other alternatives because less material would be required for road construction. Existing quarry sites will continue to be used and performance standards and reclamation plans will be required.

Potential impacts from utility corridors would be similar to the Proposed Plan, but potential environmental impacts from geothermal development would not occur because this use would not be permitted in Alternative B.

## SOILS

The impact on soil resources will be lowest on 91,400 acres with slight to moderate erosion from trail and campsite development. There will be some erosion from farm operations and soil compaction around stock watering areas.

There will be erosion from roads and soil compaction from logging systems and construction and developed recreation sites on 58,900 acres. These impacts have been rated low to moderate. The degree of soil damage will depend upon the logging system used.

High to severe impacts may occur on 7800 acres. These acres are the lands proposed to be more highly developed. The degree of soil damage will depend on the development intensity. We can expect high erosion during construction, drainfields, impervious surfacing, topsoil removal and compaction from roads, utilities and building siting.

A more detailed assessment of the impact on soil resources may be found in Exhibits H and J.

## WATER QUALITY AND QUANTITY

Alternative B would meet State Water Quality Standards; some increase in sedimentation and nutrient release in streams will occur due to increased timber harvest, road building and development. However, because Alternative B would have the least amount of area affected by timber management



and potential geothermal development on federal lands, these affects would be significantly lower than the other alternatives.

On private, county and state forest lands, the impact will be the same as the other alternatives. Enforcement of the State Forest Practices Act will reduce the impact of logging on streams. On federal lands, controls on nonpoint pollution will be stronger because land suitability analysis and resource information will be used to guide timber management practices.

Impacts from natural disasters and impacts on groundwater would be similar to those described in the Proposed Plan.

#### AIR QUALITY AND NOISE

Air quality and noise impacts and mitigating measures will be similar to the Proposed Plan in the community areas, but will be lower than the other alternatives primarily due to the reduced influence of timber management in Alternative B.

#### VEGETATION

Under Alternative B, approximately 58 percent of the Planning Unit will be managed in a natural or near natural succession cycle. On federal lands, more area will be allocated to roadless areas and less to timber management and roaded recreation than the other alternatives. Impacts on vegetation on other lands will be the same as the other alternatives.

Because Alternative B will have the most area devoted to wilderness and roadless types of management and does not expand existing ski permit area boundaries, primitive recreation activities will be more dispersed but developed ski area recreation activities will be more concentrated than the Proposed Plan and Alternative A. Therefore, impacts on the vegetation in roadless areas will be lowest under Alternative B and similar to Alternative A in developed recreation areas.

#### WILDLIFE AND FISHERIES

Potential impacts on wildlife would be similar to the Proposed Plan but lower in intensity. Alternative B includes 27,100 acres more than the Proposed Plan in various types of wilderness management, environmental protection and unroaded recreation areas. Wildlife habitat is affected by these allocations because intensive timber management affects species dependent on snag habitat and old growth forest. Other species such as deer and elk are favored by the younger plant communities generated after logging, but populations are limited by other factors such as the availability of winter range and harassment.

As in the Proposed Plan, the most significant impact on wildlife will be the continuing increase in the human population. As the number of residents and visitors increase, wildlife diversity will decrease, particularly in the Highway 26 corridor. Populations of wildlife more compatible with residents will increase while less tolerant species are reduced.

Impacts on fisheries will be similar to the Proposed Plan but sedimentation and nutrient levels would be significantly lower under Alternative B due to lower levels of timber management and exclusion of potential geothermal development.

#### AGRICULTURE

Impacts will be the same under all alternatives.

#### TIMBER MANAGEMENT

Alternative B identifies about 54,070 acres for timber production and will retain 87,500 acres of forest and nonforest land without harvesting and roads. On federal lands, there will be 20,570 acres designated where scenic and recreational objectives will reduce the timber cut from 16 to 43 percent. Impacts on private, county and state forest land will be the same for all alternatives; acreage under commercial forest varies only on federal lands.

The following table describes the timber allocations and revenues under Alternative B:

Timber	Units	Federal	State/County	Private
Comm forest	Acres	28,740	7,900	17,430
Low level mgmt	MBF/yr	8,210	1,300	6,000
Timber value	\$/yr	1,370,000	215,230	993,360
County tax rtn	\$/yr	250,200	170,030	126,190
Direct jobs	# Empl	46	7	34
Payroll values	\$/yr	2,337,740	397,000	1,734,000
Intensive level	MBF/yr	10,550	1,700	7,800
Timber value	\$/yr	1,766,000	281,450	1,291,370
County tax rtn	\$/yr	492,788	222,350	126,190
Direct jobs	# Empl	60	10	44
Payroll values	\$/yr	3,044,500	510,000	2,244,000

Note: The annual harvest estimates are based on managed yield tables and are valid for comparative purposes only. These estimates should not be construed as being an annual harvest quota. This comparison reflects the potential production of the area based on site potential and current technology.

Refer to impacts discussions on Soils, Water Quality, Vegetation, Wildlife, Trails and Roads, and Visual Resources.

#### RECREATION

Under Alternative B, approximately 7000 acres are designated for concentrated recreation and skiing and 16,600 acres are designated for Unroaded Recreation.



Provision for recreation on private lands is the same in all alternatives. Alternative B includes the largest amount of area in dispersed recreation and the least area in Developed Recreation.

The types of impacts from recreation described under the Proposed Plan would also occur in this alternative, but the amount of area affected will be different. Because the allocation for Developed Recreation on federal land is lowest in this alternative, impacts, particularly from ski areas, would be concentrated in a smaller area and the dispersed recreation use would be spread out over a larger area even though the trail corridors and popular sites would still have the heaviest use. The level of additional facility development which will occur on federal lands will be determined through a separate environmental analysis under the NEPA process, but some have been specifically excluded by the plan (e.g. no overnight accommodations at Cooper Spur Ski Area).

#### WILDERNESS AND ROADLESS AREAS

Alternative B designates all of the existing total of 66,200 acres of roadless areas for roadless or wilderness management.

The types of impacts and mitigating measures in these areas will be similar to those described in the Proposed Plan.

#### TRANSPORTATION - STATE SYSTEM

Transportation impacts and mitigating measures will be similar under all alternatives but may vary in intensity with the level of timber harvest and recreation facilities which occur. These activities may affect rates of population growth and commercial and residential development in the Planning Unit and hence, may accelerate the rate at which the highway's capacity is reached.

Under Alternative B, log haul traffic on the highways would be lowest and unroaded recreation would be dispersed over a larger area.

#### FOREST SERVICE ROADS AND TRAILS

There are no major Forest Service roads proposed under Alternative B. While there are approximately ten miles of roads proposed under this alternative, there will be fewer biological impacts because there will be fewer spur roads built. The roads which are proposed are primarily extensions of existing roads and in most cases, very short sections needed for completing an existing system. The proposed roads occur only in terrain and soil types which are suitable for road building. Approximately 29 miles of trails are proposed under this alternative. This trail system would not include a bicycle trail or a low elevation trail. The trails would be signed to avoid user conflicts.

The primary biological impact and benefits from the additional roads and trails would be similar to the Proposed Plan.

## FIRE MANAGEMENT

Potential for structural fires will be the same under all the alternatives unless additional recreational facilities are permitted under the larger ski permit area boundaries in the Proposed Plan.

The potential for wildfires is highest under Alternative B because without timber management, fuel reduction and improved access for prompt suppression will not occur. Potential fire risk associated with roads and timber harvesting will be lower, while risks associated with trail use will be higher. Some of these problems can be reduced by road closures and fire patrol surveillance. Buildup of suppression forces during periods of extreme fire hazard will be used to fight fires more effectively.

## VISUAL RESOURCES

Major types of impacts on visual resources are similar to those described under the Proposed Plan. Impacts and mitigating measures on private lands will be the same for all alternatives. However, on federal lands, impacts vary significantly. Alternative B would have the least impact on scenic quality due to the large amount of area to be reserved from timber management and developed recreation on federal lands.

## CULTURAL RESOURCES

Alternative B has the least potential for adverse impacts on cultural resources of all alternatives primarily due to lower harvest levels. Sites in areas of unroaded recreation, wilderness and wilderness study areas will be protected because there will be significant development permitted.

There is a danger that some as yet unidentified sites may be inadvertently damaged during ground disturbing activities.

The Project Planning Process for any ground disturbing activities on federal land or by federally funded projects will include an on-the-ground inventory of cultural resource sites, districts, objects and structures, as required by Executive Order 11593. Compliance with 36 CFR 800 procedures will be documented in the Project Environmental Analysis Report (EAR).

The Clackamas County zoning ordinance for recreational/residential (R-R) district, Section 22, states that effects of historic properties will be determined and evaluated as a part of each major development plan with this zone.

## SOCIAL

Population and Community Identity and Growth and Development. Even though the land categories on private lands are the same for all the alternatives, Alternative B would probably tend to encourage the rate of growth the least. Under Alternative B, much of the federal lands would remain in some type of wilderness or roadless management which would provide higher scenic quality and more dispersed recrea-



tional opportunities. It would also retain developed recreation facilities at present levels and not permit geothermal development which could have significant or minimal impacts under the other alternatives if they were feasible and developed.

In other respects, the social impacts would be similar to the description in the Proposed Plan.

Housing. Housing needs would be similar to those in the Proposed Plan.

Employment and Occupations. Employment characteristics would be similar to those in the Proposed Plan except that 55 fewer direct timber related jobs would be available annually under Alternative B due to the extensive wilderness and roadless areas on federal lands. Seasonal employment fluctuations will continue. Intensive timber management and more year round use of developed recreation facilities will reduce these affects but not to as great an extent as in the other alternatives because less area is available for harvest and there are limits on additional facilities under Alternative B. Agricultural related employment will be protected through the county plans but continuing technological advances could reduce the number of jobs available. Construction jobs will be an important activity until the area approaches proposed population and density levels.

Community Services. Community services impacts would be similar to those in the Proposed Plan.

Energy Consumption. Impacts would be similar but somewhat lower than those described in the Proposed Plan because less area will be allocated for timber management and roads on federal lands. The potential energy production from geothermal development would not be permitted on federal lands. However, it is not known if acceptable resources are present and therefore, whether economically viable development projects are actually being foregone.

## ECONOMIC ACTIVITY

Economic activity derived from nonfederal lands would be similar to the Proposed Plan. Although Alternative B does not permit additional ski area facilities (except expansion of accommodations at Timberline Lodge) and geothermal development on federal lands, it is not known whether economic opportunities have been lost or the potential extent that they may be lost because the feasibility and potential for these types of developments are unknown.

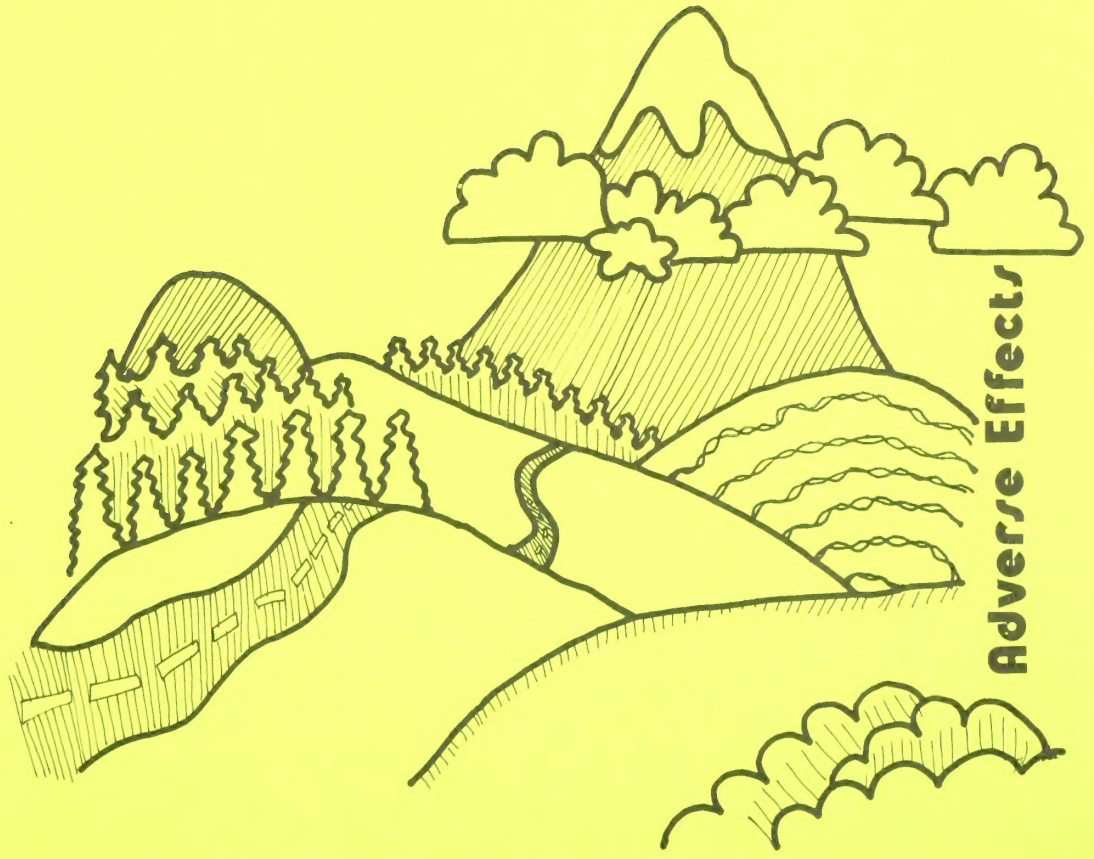
Because the primary difference between the alternatives is the area allocated for timber harvest on federal lands, Alternative B will have a significant affect on the return to the counties and Federal Treasury. Under Alternative B, return to the counties from federal timber lands would range between \$250,200 and \$492,788 per year depending on the level of management applied while return from the Proposed Plan would be \$511,632 to \$821,288. Therefore, because counties depend on these federal funds for schools and

roads and Alternative B will provide a lower level of return, county taxes on private lands will have to be higher than under the other alternatives. Returns to the Federal Treasury, which ultimately affect federal tax rates, will be lowest under Alternative B.

Payroll values from federal lands would range between \$2,337,740 and \$3,044,500 under Alternative B and \$5,335,000 to \$5,865,000 under the Proposed Plan.







**Adverse Effects**





## ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The planning process is designed to safeguard against adverse environmental effects through the determination of the capacity and suitability of the land to produce specific goods and services (refer to Exhibit G). However, the Proposed Plan and its alternatives would result in some unavoidable adverse environmental effects.

Physical Effects. The activities which take place under any alternative have some adverse impact on soil resources. These impacts range from low to severe. Microclimatic changes may affect land productivity and the composition of plant communities. Slight to moderate erosion would result from trail and campsite development and farm operations. Soil compaction will occur around stock watering areas and from ground skidding of logs. High to severe impacts may be realized during construction of housing and commercial facilities. Some timber operations will cause soil erosion. In regard to developments, the degree of soil damage will depend on the degree of development intensity, with the greatest intensity (i.e. commercial) causing the greatest damage. Comparatively speaking, Alternative A will have the highest impact on microclimatic conditions and soil resources and Alternative B the lowest. The Proposed Plan has a moderate impact on microclimatic conditions and soil resources.

Geologic hazard mapping will continue to be used to locate potential problem areas which will be studied in detail prior to road and timber sale design. Housing areas were not designated in known geologic hazard areas.

Under all alternatives, localized increases in runoff will occur as developed areas or compacted soils create more impervious surfaces, but these effects can be reduced through engineering planning and design and the logging system selected.

The impact of sediment and chemicals introduced to streams in the urban areas remains the biggest threat to water quality. Sedimentation impacts can be controlled if measures are employed during construction to prevent erosion. Surface water diversions for domestic purposes would diminish streamflows and result in deteriorating water quality.

If implemented, geothermal development could cause water quality problems in the Planning Unit from soil and slope disruption and waste water disposal.

Under all of the alternatives there is a potential for increased sedimentation in irrigation systems serving agricultural lands. Land activities which contribute the most sedimentation would be residential construction, road building, timber harvesting and agriculture. Alternative A, which has the area for timber management would cause the most sedimentation. Alternative B would have the least amount of sedimentation, while the Proposed Plan would be intermediate.



Timber harvest and associated road construction will cause soil disturbance while the work is being done. Erosion and sedimentation will continue until stabilization (e.g. grass seeding) becomes effective. The activities of all alternatives will cause localized soil compaction and erosion. There would be an increase in the potential for landsliding on steep cutslopes and timber harvest units. Geologic hazard mapping however, has attempted to locate potential problem areas which will be studied in detail prior to road and timber sale design. Timber harvesting will also change the landscape character. Log hauling will increase traffic and noise near residential areas. Timber harvesting will also adversely affect wildlife species requiring snag habitat. Proper logging systems, careful design of timber sales, avoidance of critical soil areas and erosion control measures should serve to reduce adverse effects on soil productivity, water quality and the aesthetic resources. Water quality monitoring would continue to provide information and data on sedimentation and turbidity.

Social and Economic Effects. All of the alternatives provide for residential growth ranging from 2.6 to 3.1 times the current population (seasonal and year round). Irrespective of the alternatives, additional growth will have a series of adverse environmental effects. These effects are physical, biological, social and economic. The difference between the alternatives are largely a matter of degree, magnitude and duration of impact. Alternative A would have the most severe impacts. The Proposed Plan best mitigates the adverse effects from the standpoint of the overall broad spectrum of activities. Alternative B is a strong mitigative plan due to its reduced acreage and lower level of timber harvesting, but has the highest potential for wildfire. Land use ordinances and management policies which support the adopted plans and additional planning on a project or functional scale (i.e. sewers, Highway 26, community designs) will further minimize the adverse impacts of growth and development.

Alternative B identifies 27,100 acres more than the Proposed Plan for wilderness and roadless recreation. If this area were designated for timber harvest as proposed under Alternative A and the Proposed Plan, future options for roadless recreation would be lost. This could be considered an adverse effect by those who would advocate roadless recreation for these areas.

Since all of the alternatives provide for some expansion of recreation facilities, we can expect some adverse, unavoidable impacts on the environment. This will occur mainly in the areas of soil compaction, landscape alteration and lack of quality recreation due to the congestion of people in some areas on federal lands. The adherence to visual quality standards and proper design and recreation site construction should alleviate the majority of these impacts.

Highway modifications under all of the alternatives would create some adverse environmental impacts. Under all alternatives, expansion of existing two lanes to four lanes between Brightwood and the Timberline Highway would have to be made as projected population levels are



approached. This could have a substantial impact on the large old growth trees adjacent to the highway and therefore, would have a significant effect on the visual experience of the highway user. Comparatively speaking, Alternative B would have the least adverse environmental impacts from expansion of the transportation system. The Proposed Plan and Alternative A both call for the installation of approximately 52 miles of trails in the Planning Unit. These could produce wildlife harassment and its resultant reduction in wildlife diversity, the potential detrimental impact of foot traffic on vegetation, soil compaction, the potential for blowing dust and some temporary noise and soil movement. Alternative B would involve only 29 miles of new trail and would therefore, result in fewer impacts on the environment, but perhaps a reduction in recreational quality due to the congestion of users on less trails. These adverse effects would be mitigated because of the social benefits which would occur from development of those trails. The scenic values may be improved through the revegetation and reshaping of existing and proposed roads and the dispersion of recreation use over more area on additional trails.

There would be increased energy consumption under any of the alternatives; these are adverse environmental impacts due to the emissions which would be generated by both residential and automobile use. Comparatively speaking, Alternative B would produce the least amount of emissions because it involves the least amount of logging and developed recreation areas and does not permit geothermal development. Both the Proposed Plan and Alternative A would allow geothermal exploration and development, subject to development performance requirements and on federal lands, an environmental analysis would be made following the NEPA process at each stage of exploration and development.

The major impact on wildlife will be the inevitable increase in people density. This increase in residents, visitors and the accompanying development will result in vegetative layering, hydrosere and trampling and removal of wildlife habitat. Wildlife will be subjected to both primary and secondary harassment impacts (Horn, 1975), especially in high residential areas and popular recreation sites such as the alpine biome. The south side of Mt. Hood near Timberline Lodge and the associated Pacific Crest National Scenic Trail, Trillium Lake area, Mt. Hood Meadows will be impacted the greatest amount and will be especially critical because vegetative recovery is low and ecosystems are extremely fragile in the alpine biome. Critical impacts will also occur in the low elevation (2000 feet and less) big game winter range.

Though not as critical as the increasing human population density, timber management activities will have an impact on some species. The greatest impact will be on snag habitat (Horn, 1975) and to a lesser extent, hydrosere and the few pockets of old growth timber in commercial forest lands.



Current research is reflecting a growing number of organisms dependent on or significantly using snag habitat, old growth ecosystems and hydrospheres. Important game animals and fur bearers such as cougar, deer, bear, wolverine and marten all appear to be closely associated with old growth habitat on the Mt. Hood National Forest. In certain westside areas of the forest, deer and cougar appear to be dependent on old growth ecosystems as an important element of their home range. While most of the wildlife using snag habitat are nongame animals, their value to mankind is nonetheless as important as game animals because they help control insects and/or rodents which often cause considerable economic loss of wood products and scenic vegetation.

Species least tolerant of man will be replaced by other wildlife species, particularly in the developed corridor along Highway 26. Wild trout angling opportunities will be diminished in all the alternatives and in certain instances, could lead to restrictions designed to protect the opportunity through rationing its use. Increased human pressure will also have impact on present and potential use of the streams by anadromous fish. Erosion of aquatic habitat will be partially responsible; but at human population levels projected for the future, the capability to provide a summer run steelhead fishery in the Planning Unit may be possible due to inability to protect adult fish from overfishing, poaching and human harassment. Because of their lengthy exposure to low summer streamflows prior to spawning, both summer steelhead and spring chinook adults can be extremely vulnerable to human harassment.

Visual impacts will be greatest in areas where timber harvesting, road construction and development will be modifying the natural landscape for the first time. Therefore, these effects will be greatest under Alternative A and least significant under Alternative B. On federal lands, all areas are subject to some visual quality standards, particularly those near popular travel corridors or highly scenic features and therefore, some of these effects will be reduced. In Clackamas County, the plan also addresses scenic quality by establishing a visual corridor along Highway 26 west of the National Forest boundary.

Growth in residents and visitors under all the alternatives will increase demands upon water supplies, sewerage facilities, medical services, police and fire protection and schools. Sewage and water systems and county planning controls will tend to cluster development; costs of community services will increase but services probably may become more effective.

The construction of sewage treatment plants and increased need for sewage disposal in the Planning Unit under all of the alternatives will create some adverse effects. Treatment plants may become a dominant feature of the landscape unless designed with a generally low profile and screened. The long term impact of the treatment facilities will be that the land use will be dictated for the life of the plant. Construction of the irrigation fields which may be proposed



will cause some influence on the groundwater tables of the area in that the water that does not evaporate at the time of application where it has not transpired from the vegetation, will percolate downward and join the groundwater. This effect will be alleviated by the installation of irrigation fields in proper soils. The sludge solids which will be produced by treatment plants will have to be disposed of in landfill sites. The construction of sewage treatment facilities involves all of the adversities of clearing, grading, noise and inconvenience. Unprotected land may erode during construction but this can be minimized with proper drainage control. Dust during construction will be a problem also, but this will be limited to the construction site and should not cause a nuisance to the adjacent areas. In areas that call for forced mains, there may be some slight odor problems.

This growth would also affect the present communities by increased automobile congestion, criminal activity, noise and possible loss of community identity as densities and neighboring land uses change. In areas like Government Camp which allow high population densities and more developed tourist recreation and commercial areas, the composition of the communities may change significantly as older established residents are faced with increasing land values and larger numbers of new younger people with different lifestyles.

There do not appear to be any adverse effects on minority groups or low income persons because all the alternatives offer a wide range of employment, housing and recreational opportunities. None of the alternatives will reduce agriculture related jobs which are currently one of the largest sources of employment for minority and low income individuals in the Hood River County portion of the Planning Unit.

If Alternative B were to be implemented, it would have some significant economic impacts. Compared with Alternative A which has the highest acreage of land in commercial timber production, the timber value would decrease between \$1,391,520 and \$1,794,600. The county tax returns would be reduced between \$358,932 and \$380,541 and the direct jobs would be reduced by 50 to 60 forest product employees. Payroll values would be decreased \$2,416,260 to \$3,075,500. (These values and numbers are based on a low and high level of management and not current yield.) Compared with Alternative A, the Proposed Plan will result in slight reductions in these economic values (see Summary Impacts section).







**Short and Long Term Relationships**





## RELATIONSHIP BETWEEN SHORT TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG TERM PRODUCTIVITY

The foundation of the land use planning process for the Mt. Hood Planning Unit was the analysis of the long term suitability and capacity of the land to support various uses and activities. These suitability characteristics formed a basis for all the plan alternatives, considering public needs and demands and the various laws and policies under which the Forest Service, Bureau of Land Management, State of Oregon, Clackamas and Hood River Counties must operate.

The Proposed Plan is considered to be the plan which would best meet local, regional and national needs and demands on both a short term and long term basis. A discussion of the rationale for selection of the Proposed Plan is included in this statement following the description of the impacts.

Generally speaking, the scenic quality of the Planning Unit will be protected on federal lands through adherence to visual quality objectives. The harvesting of timber through clearcutting will have some short term adverse visual impacts which will be minimized through proper sale design. This will, in the long run, produce visual diversity of texture and shape in the forest.

All of the alternatives have wilderness study areas and therefore, have the potential for protecting natural open space and solitude for future generations. The conversion of these wilderness study areas to timber producing areas should they not meet the standards for wilderness would have the long term effect of eliminating them as unroaded open space areas for future generations.

The wildlife of the Planning Unit will be impacted in the long run no matter which alternative is selected because increased population levels will reduce the wildlife diversity. Alternative B would have the least effect because it retains the most area in wilderness or roadless management.

Due to the population levels proposed, the character of the water quality will be affected in the long run. This will cause greater turbidity and introduce chemicals into streams occurring in the areas proposed for commercial forest management or development. Turbidity will be increased by erosion from timber harvesting, road building and land clearing for development. Impacts from these activities are short term but their cumulative effects can be significant on fisheries and domestic water quality. Petroleum products introduced to storm drains and pesticides introduced to inhabited areas are the primary sources. The trend toward use of rapidly degradable pesticide products may lessen the long run consequences. Many of the lubricating oils are acquired in over-the-counter sales and after use, find their way into stream courses. This can significantly impact water quality, the impact proportional to the degree of urbanization and timber harvest. More extensive use of recycling systems could effectively mitigate these adverse effects.

The short term effects on fisheries management through each alternative will be a limited loss in productivity, least significant being Alternative B and



most significant, Alternative A. The long term productivity would be highest with the Proposed Plan, about the same as the present situation with Alternative B and reduced with Alternative A.

A variety of recreation opportunities will be available under each of the alternatives. Designation of use areas (e.g. off road vehicle areas and horse trails) will reduce user conflicts and help protect against soil disturbance, water quality degradation and wildlife harassment. In turn, the capability of the land to sustain various recreation uses will be maintained. The conversion of existing timber producing areas to exclusive recreational uses will have a long term effect on the harvest levels within the Planning Unit. These may be offset by increased revenue generated by recreation use.

The Proposed Plan and Alternatives recognize maintenance of water quality as a primary management objective. Some activities such as timber harvesting, road building, the development of commercial facilities and residential sites may have localized effects on water quality. However, all activities will be designed to maintain a continuous supply of high quality water over the long term.

Under the Proposed Plan, many of the areas presently designated for harvest will be entered earlier under intensive management programs to permit stands of trees to grow at a more rapid rate. The long term effect of this program will be further increases in yield, jobs, greater returns in value, taxes and payroll. Alternative B has reduced conflicts in harvesting and retains some of the highly productive forests in the lower Clackamas corridor. The long term effect under this plan will be a gradual increase in yields due to improved utilization and technological development.

Protection of the Planning Unit from forest fires and commercial and residential fires is a primary emphasis in management. Forest fuels management would be an ongoing activity designed to prevent major wildfires over the long term. In turn, this would maintain the productivity of the entire area to supply high quality water and support sustained timber production.

Slash burning, road construction, residential and commercial construction and timber harvesting will cause temporary degradation of air quality through increased smoke, noise and dust levels, but this will not be a permanent effect on specific sites. However, it will be a continuing long term effect throughout the Planning Unit.

Proposed highway improvements which are called for under each of the alternatives have the effect of reducing the amount of lands available for commercial timber production in the long run as well as the removal of rock sources and mineral aggregate needed to build the roads.

Should geothermal energy be developed within the Planning Unit, the long term effect would be energy production, some of which might be applied to local energy needs. Gasoline usage and domestic consumption of home fuels will increase under each of the alternatives due to the increased population levels. This increased fuel consumption could have the long term effect of reducing the energy sources available for future generations.



Providing sewage collection treatment facilities for an area will constitute an irreversible, long term economic and land use commitment, not only for the present residents of the areas but for future generations as well. This will in turn, necessitate that the land being developed to more concentrated forms of use than the timber and recreational use and rural housing, that the land is now supporting.

Any significant increases in traffic volumes will result in a need for expansion of some sections of U.S. 26 as noted above. If some degree of growth in local population, numbers of visitors and traffic volumes is regarded as unavoidable, the need to choose between lower levels of service and an expanded highway facility is also unavoidable. Given sufficient resources and funds, the policy of the State Transportation Commission is to provide acceptable levels of service, taking into consideration, increases in alternative transit modes. For U.S. 26, this is likely to mean expansion of the highway as well as providing incentives for the use of bus service for mass transit.

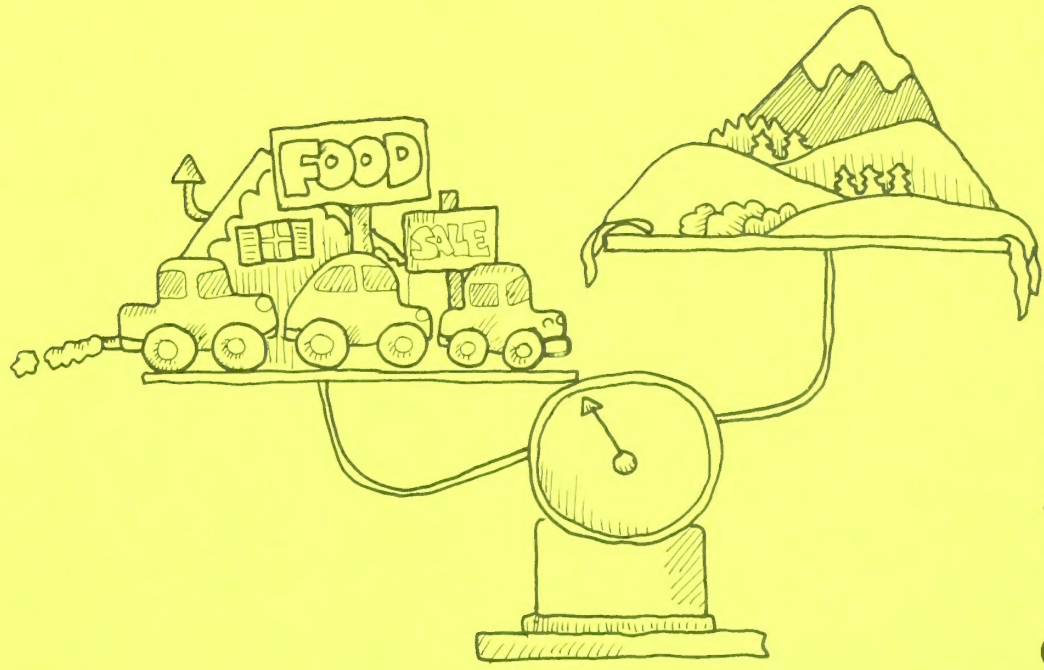
1. Any widening of the highway in the Wildwood/Welches Road (Zigzag) section will adversely affect the Dwyer Forest Corridor.
2. Highway widening adjacent to Tollgate Park, one mile east of Rhododendron, would require clearing of forest land across the highway from the historical site since the park is located in a relatively narrow strip between the existing highway and the Zigzag River.
3. Removal of existing roadside vegetation for highway widening and slope improvement will adversely affect the Forest Service's existing visual quality Foreground Management Zone. In many cases, most of this adverse affect will only be temporary, pending reestablishment of natural cover.
4. Any relocations of businesses and revision of local circulation patterns and access in the Wildwood/Rhododendron population centers are likely to have some adverse effects in individual relocation cases, but these are generally compensable. Well planned revisions in existing circulation are likely to produce long term benefits which will far exceed the temporary inconveniences.

Residential growth and development is considered to be a long term use of the environment. The degree of commitment is dependent upon the designations made in the alternatives and is further described in the County Comprehensive Plans and implementing ordinances.

Preservation of cultural resources sites will benefit the long term use of these resources while precluding some other short term uses such as recreation and timber harvest. If the short term benefits of using these other resources now outweigh the benefits of cultural resource preservation (as determined through the 36 CFR 800 procedures), salvage of cultural resource information may be necessary. This will represent a short term beneficial use of this resource but preclude any long term benefits obtained by choosing to preserve it.







**Commitment of Resources**





## IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Increased recreation use, timber management, road construction, commercial and residential development in the Planning Unit will result in the loss of some wildlife and plant species through alteration of habitat. Probably the first ecosystem to be affected will be the alpine biome, especially the area around timberline and species dependent on old growth and snag habitat. When habitat conditions of this ecosystem are altered to the point where the present wildlife species can tolerate conditions there, they will disappear from the area (a detailed list of the plants and animals which may be most directly affected is included in Exhibits K and L.

The principal irretrievable commitment of resources which applies to the highway system under any of the alternative plans is the further depletion of the limited mineral aggregate sources in the Planning Unit. Mineral aggregate is required for all highways and much building construction. Materials used in constructing state highways will not be available for county and Forest Service roads. It is doubtful that this resource is more plentiful outside the Planning Unit and hauling costs would become prohibitive in long distances.

Development of a highway oriented transportation system assumes that suitable fuels will continue to be available at acceptable costs and that mode preferences will not shift significantly in the near future. Whether or not these assumptions are entirely correct, the proposed highway investments envisioned would constitute a commitment to the continuation of a highway oriented system; a commitment which, if not irreversible, is certainly resistant to reversal.

Development of commercial and residential facilities throughout the Planning Unit will curtail the option in the long term for some wildlife wintering areas and recreational uses. Soils disturbance and coverage caused by residential growth will be largely irreversible.

If domestic water supplies are not significantly augmented by groundwater then the additional housing and commercial development proposed will cause some loss of fish habitat through increased water consumption during summer periods, human litter and waste and additional harassment.

Under the Proposed Plan and Alternative A, some existing roadless areas would be committed to commercial timber harvest or developed recreation. This would foreclose the option of roadless recreation for future generations on 27,100 acres under the Proposed Plan and 31,300 acres under Alternative A.

Destruction of cultural resources is an irretrievable commitment of those resources. All attempts will be made to avoid such irretrievable losses by developing suitable measures to mitigate adverse impacts.



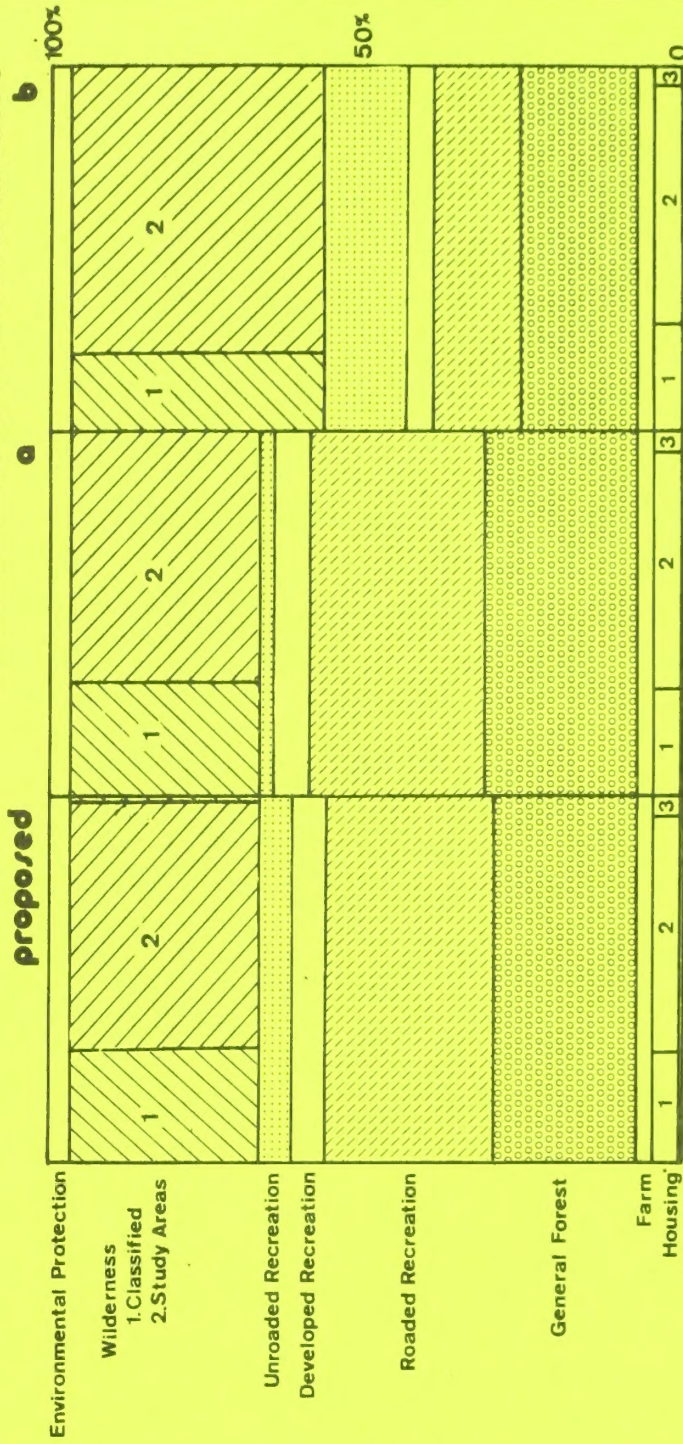




## **Summary of Effects**



# ACREAGE ALLOCATION BY ALTERNATIVE



## SUMMARY OF EFFECTS

This section provides graphic and tabular comparisons between the Proposed Plan and the Alternatives. The information is presented in two sections; first by individual topics and second by general assessment.

Figure 35

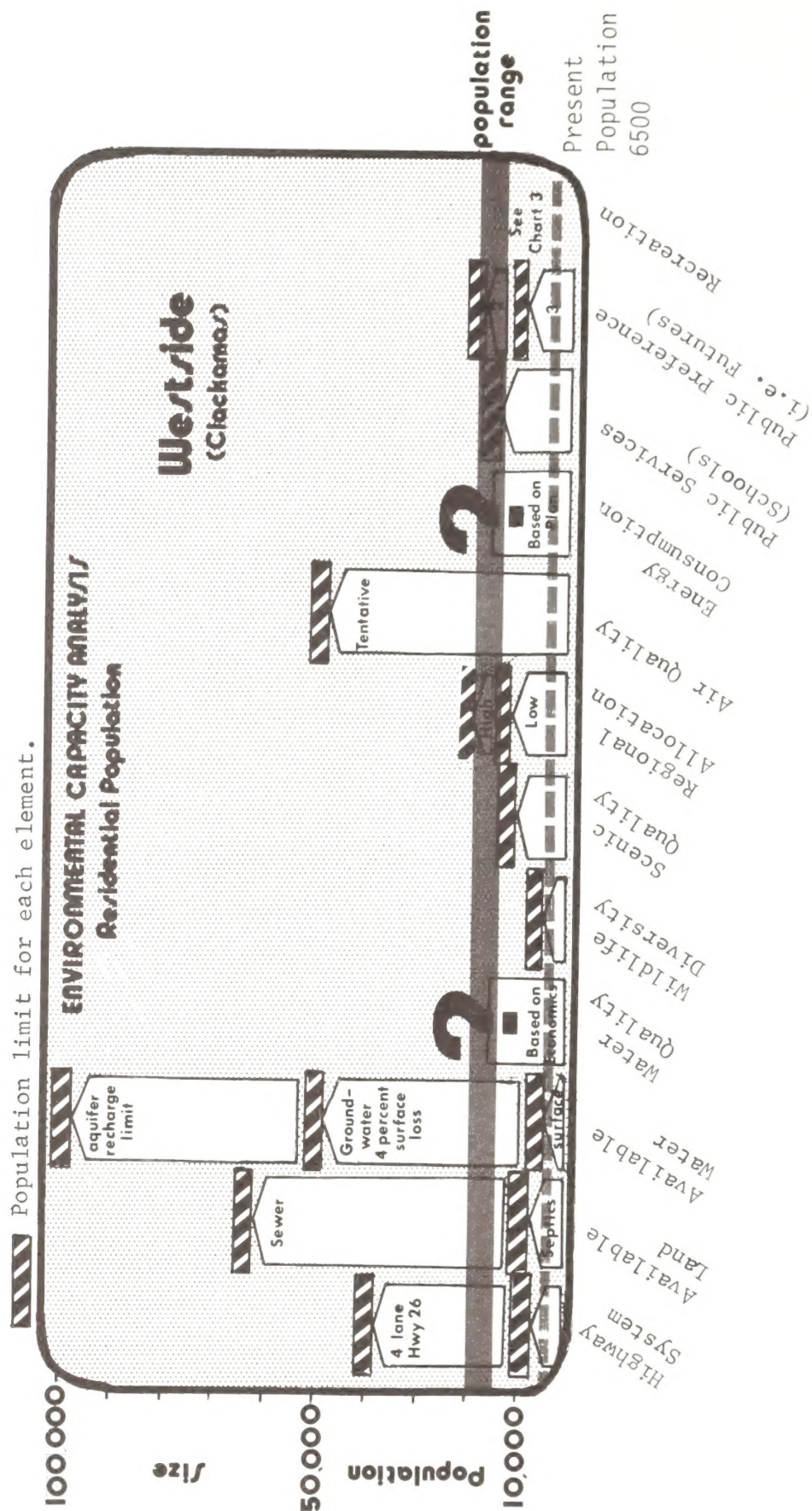
### MT. HOOD PLANNING ACREAGE ALLOCATIONS BY LAND USE ALTERNATIVE

Area Designation	Proposed Plan	Alternative A Existing Plan Alternative	Alternative B No Change/Wilderness Alternative
1. Environmental Protection a. Floodplains b. Other areas			
TOTAL	4,700	4,700	4,700
2. Wilderness a. Classified b. Study area	14,100 33,900	14,100 33,500	14,100 52,100
TOTAL	48,000	47,600	66,200
3. Unroaded Recreation	7,700	3,900	16,600
4. Developed Recreation a. Ski areas b. Other areas	8,000 600	6,700 600	6,400 600
TOTAL	8,600	7,300	7,000
5. Roaded Recreation	41,200	44,500	24,100
6. General Forest	36,100	38,300	27,800
7. Farm	3,900	3,900	3,900
8. Housing a. Rural b. Recreational residential c. Planned resort	2,100 4,900 500	2,100 4,900 500	2,100 4,900 500
9. Commercial, Industrial, Special Sites	300	300	300
GRAND TOTALS	158,000	158,000	158,000

Note: Data may not add to totals because of rounding.



# Westside (Clockwork)



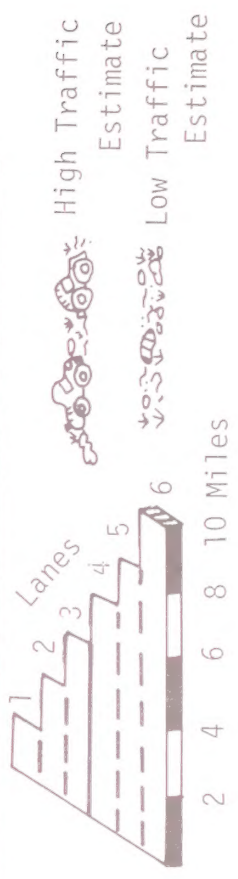
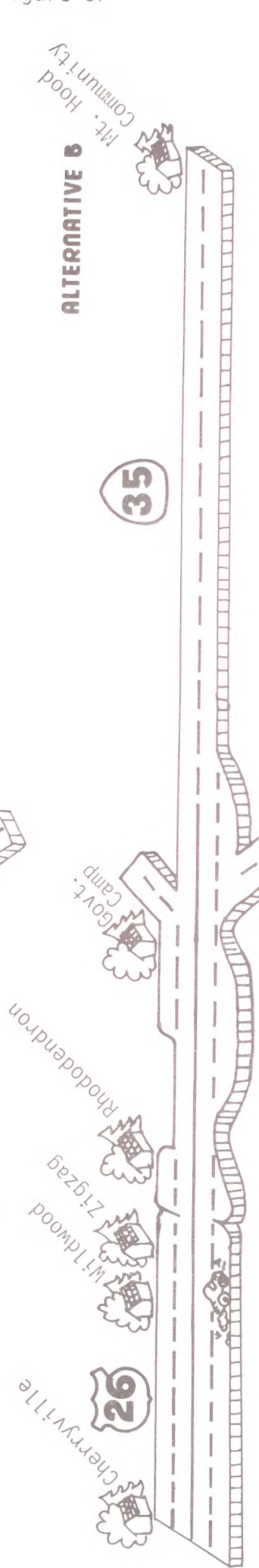
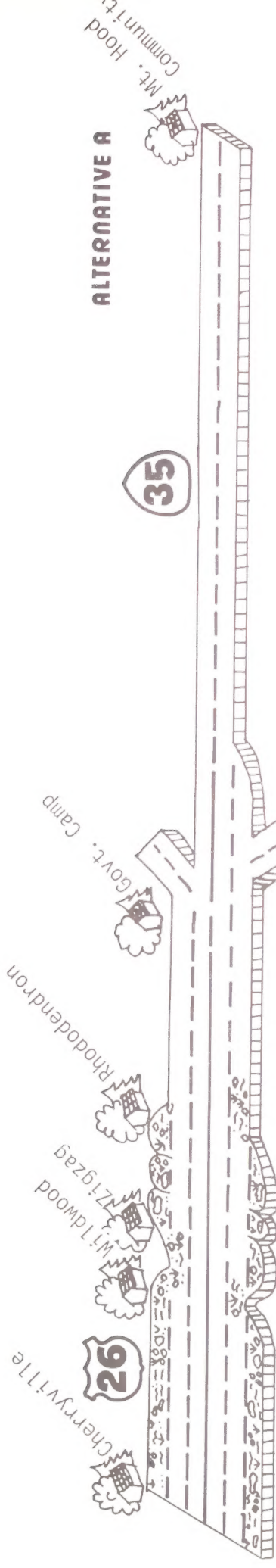




TABLE 1. BIOLOGICAL POTENTIAL

Alternative	Standard AC	MMBF	Retention AC	Retention MMBF	Partial Retention AC	Partial Retention MMBF	State & County AC	State & County MMBF	Private AC	Private MMBF	Total AC	MMBF
A	17,080	5.9	8,770	3.0	32,020	11.	3,800	1.3	17,430	6.0	78,800	27.2
B	6,820	2.3	4,710	1.6	17,200	6.0	3,800	1.3	17,430	6.0	48,190	17.2
Proposed	14,830	5.1	8,050	2.8	29,400	10.0	3,800	1.3	17,430	6.0	73,510	25.2

TABLE 2. REDUCTIONS IN BIOLOGICAL POTENTIAL DUE TO VISUAL MANAGEMENT

Alternative	Standard %	Vol.	Retention % 2/	Retention Vol.	Partial Retention % 2/	Partial Retention Vol.	State & County	Private	Total
A	0	0	43	1.3	16	1.8	0	0	3.1
B	0	0	43	.6	16	1.0	0	0	1.6
Proposed	0	0	43	1.1	16	1.6	0	0	2.7

TABLE 3. POTENTIAL YIELD AT LOW LEVEL MANAGEMENT INTENSITY

Alternative	Standard	Retention	Partial Retention	State & County	Private	Total
A	17,080	8,770	31,720	3,800	17,430	78,880
B	6,820	4,710	17,200	3,800	17,430	49,960
Proposed	14,850	8,050	29,400	3,800	17,430	73,530

1/ Commercial thinning level of management with 9" dbh to 6" top (approximates current management plan calculations).  
Volume is calculated by acres available for harvest x 345.3 bf/acre/year.

2/ Bacon and Twombly. 1976. Region 6 Report on Timber Yield Levels for Visual Management Program. Portland, OR.

TABLE 1. BIOLOGICAL POTENTIAL FOR MT. HOOD PLANNING UNIT

Alternative	Standard AC	Standard MMBF	Retention AC	Retention MMBF	Partial AC	Partial Retention MMBF	State & County AC	State & County MMBF	Private AC	Private MMBF	Total AC	Total MMBF
A	17,080	7.6	8,770	3.9	31,720	13.9	3,800	1.7	17,430	7.8	78,800	34.9
B	6,400	2.9	4,420	2.0	16,140	7.0	3,800	1.7	17,430	7.8	48,190	21.4
Proposed	14,830	6.6	8,050	3.5	29,400	12.8	3,800	1.7	17,430	7.8	73,510	32.4

TABLE 2. REDUCTIONS IN BIOLOGICAL POTENTIAL FOR VISUAL MANAGEMENT

Alternative	Standard %	Standard Vol.	Retention % 2/ Vol.	Retention Vol.	Partial % 2/ Vol.	Partial Retention Vol.	State & County	Private	Total
A	0	0	43	1.7	16	2.3	0	0	4.0
B	0	0	43	.9	16	1.1	0	0	2.0
Proposed	0	0	43	1.5	16	2.0	0	0	3.5

TABLE 3. POTENTIAL YIELD AT INTENSIVE MANAGEMENT LEVEL

Alternative	Standard	Retention	Partial Retention	State & County	Private	Total
A	17,080	8,770	31,720	3,800	17,430	30.9
B	6,400	4,420	16,140	3,800	17,430	19.4
Proposed	14,850	8,050	29,400	3,800	17,430	28.9

<sup>1/</sup> Volume is calculated by acres x 447.8 bf/acre/year based on a managed yield table average for different site conditions, based on using trees with 7" dbh and 4" top, pre-commercial thinning and genetically improved stock.





Figure 39

## TIMBER MANAGEMENT COMPARISON SUMMARY SHEET (per annum)

Timber	Units	Proposed	Alternative A	Alternative B
Commercial Forest	Acres	75,530	78,880	48,190
Current yield	MBF/Yr	22,400	23,900	74,800
Timber value	\$/Yr	3,721,780	3,970,110	2,446,520
County tax return	\$/Yr	648,709	926,961	530,964
Direct jobs	# Empl	126	135	84
Payroll values	\$/Yr	6,426,000	6,885,000	4,284,000
High Yield	MBF/Yr	29,900	30,900	19,400
Timber value	\$/Yr	4,968,860	5,133,420	3,229,480
County tax return	\$/Yr	1,054,850	11,200,260	774,818
Direct jobs	# Empl	169	174	110
Payroll values	\$/Yr	8,619,000	8,874,800	5,610,000

## FISHERY COMPARISON (per annum)

	Present	Proposed	Alternative A	Alternative B
Anadromous fish value	\$1,800,000	Increased	Slight	No change
Sports fish value	232,000	Slight incrise	No change	Slight incrise

Evaluation based on assumption that the areas develop to the potential permitted. Fishery biologists have estimated trends but cannot realistically project true value received from fishing.

## VISUAL RESOURCE ASSESSMENT

Proposed Plan

Under the Proposed Plan, 70 percent of the lands in the Planning Unit would be managed to meet one of the first three visual objectives, all of which require that any management activity remain subordinate to the natural landscape character.

Figure 40

## VISUAL QUALITY OBJECTIVES

	Proposed Action		Alternative A		Alternative B	
	Acres	%	Acres	%	Acres	%
Preservation	50800	32	47800	30	64000	41
Retention	21400	14	18700	12	24600	19
Prtl retention	38600	24	42100	27	24600	15
Mdfctn, max mdfctn	14600	9	16800	10	6300	4
Non USFS	32600	21	32600	21	32600	21
TOTAL ACRES	158,000		158,000		158,000	



GENERAL ASSESSMENT SUMMARY  
MT. HOOD INTERAGENCY EIS

Figure 41

Environmental Effects	Proposed Plan 1/	Alternatives	
		A	B
1. Air Pollution	Increases in residential and recreational traffic, furnace emissions and wood smoke from houses, and slash disposal may cause some air quality degradation.	Greatest increase is slash disposal. Recreational and residential traffic, home furnaces and fireplaces.	Least amount of slash disposal. Increase in residential and recreational traffic and numbers of residents.
Automobile Emissions (tons/yr)	4,990	4,990	4,990
Home Furnace Emissions (tons/yr)	75-90	75-91	75-91
2. Water Pollution & Erosion	Water quality maintained thru adherence to standards and additional sewage treatment facilities. Residents, visitors, logging and agriculture will contribute to increased non-point pollution.	Nonpoint pollution from logging activities will be highest in this alternative.	Nonpoint pollution from logging will be lowest under this alternative.
Sedimentation Annual volume from developed areas (tons/yr)	9,600	9,600	9,600
Sewage Effluent Total volume (million liters/yr)	2,210	2,210	2,210
--% generated from proposed sewer areas	76	76	76
Pollutants (BOD, COD, N, SS)			
--from proposed sewer areas (kilograms/yr)	111,090	111,090	111,090

Storm Runoff Total volume in urbanized areas (million liters/yr)	3,410	7,410	7,410
3. Solid Waste Total Volume (tons/yr)	11,680	11,680	11,680
4. Noise Where buffers and setbacks are absent, high level of noise irritation is likely in developed areas.			
Acres of Probable Exposure to Urban Noise Level (50-55 dB)	4,100	4,100	4,100
5. Vegetation & Wildlife Index of Impact Upon Wildlife Diversity <sup>2/</sup>	Direct effect of population increase, added housing, and road development is to degrade wildlife habitats, increase harassment and reduce diversity. 77	More impact than proposed plan due to timber management	Less area under commercial timber management and development than proposed plan and lower harassment level.
Acres Cleared for Development	1,800	- 3.2 2,800	- 0.5 1,400
6. Fisheries Streamside management practice will cause no substantial change in fish habitat. Fish rearing ponds in Salmon River area will be provided, increasing fish production and economic revenues.		No additional fish rearing facilities	Some additional fish rearing facilities provided.
7. Visual Quality Development in designated areas, scenic standards in federal lands.		Less restrictive standards on federal lands.	More restrictive standards on federal lands.
Index of Impact Upon Scenic Quality <sup>2/</sup>	4.1	- 1.2	+ 0.2



Proposed Plan			Alternatives	
Level 1		Level 2	A	B
<u>Environmental Effects</u>				
8. Water & Energy Consumption				
Total Domestic Water Requirement (thousand gallons/day)		970-1620	970-1620	970-1620
--Demand in proposed sewer areas (% total)		52	52	52
Energy Consumption (Annual BTU)		947x10 <sup>9</sup>	947x10 <sup>9</sup>	947x10 <sup>9</sup>
<u>Socio-Economic Effects</u>				
9. Commercial-Recreation Economy				
Total Value (All Income)				\$28,000,000-\$39,000,000
% of all revenues				
Total Wage Requirements				\$13,800,000-\$17,930,000
% of all wages				
Total Employment				\$ 2,676,000-\$ 3,455,000
% of all labor		75		
10. Timber Industry				
Acres of Commercial Forest <sup>3/</sup>		73,530	48,710	54,070
Present Yield (MBF/yr) <sup>4/</sup>		22,400	23,900	15,510
Timber Value (\$/yr) <sup>5/</sup>		3,721,780	3,370,110	2,578,590
County Tax Revenue (\$/yr) <sup>6/</sup>		648,709	326,961	546,420
Direct Jobs <sup>7/</sup>		126	135	87
Payroll Value (\$/yr) <sup>7/</sup>		6,426,000	6,305,000	4,468,740
Intensive Yield (MBF/yr)		29,900	30,900	20,050
Timber Value (\$/yr) <sup>5/</sup>		4,967,860	5,123,420	3,338,820
County Tax Return (\$/yr) <sup>6/</sup>		1,054,850	1,200,260	841,328
Direct Jobs <sup>7/</sup>		169	174	114
Payroll Values (\$/yr) <sup>7/</sup>		8,619,000	8,874,000	5,798,500
Fire Risk & Hazard		Fire risk increased due to additional residents and timber harvest; maintain fuel levels at moderate level through slash disposal and improved utilization.	Most severe fire risk due to higher levels of residents and visitors and timber harvesting, maintain fuel levels at moderate level through slash disposal and improved utilization.	Still some increase in fire risk due to increases in population and harvesting; more large unroaded areas will cause fuel hazard to build over the long range.





## GENERAL ASSESSMENT REFERENCES

- 1/ Assessments on all alternatives based on the growth level of 17-22000 population permitted in the County Comprehensive Plans.
- 2/ Index values are a percentage factor relative to the estimated population capacity for the particular element, i.e. scenic or wildlife. For example, a value of +.7 means the alternative exceeds the element's carrying capacity by 70%; a value of +.3 means 30% below the estimated capacity limit.
- 3/ Commercial forest acres are based on land category decision and field examinations using criteria in PNW field instructions for integrated forest survey (Oregon and California). Acres were based on measurements from 2"=1 mile USGS maps with a planimeter.
- 4/ Present yield estimate based on current Forest Service management level on the Mt. Hood National Forest. This includes the present level of stocking level control. The unit MBF is 1,000 board foot measure, Scribner decimal "C" log scale. (This estimate is preliminary.) Timber yields are based on sustained yield levels developed in the Mt. Hood/Willamette yield tables. Yield coefficients were contingent on the field condition and calculated with a linear program model. Yields were reduced by 50% on lands where "retention" visual standards were applied and the area was removed for streamside management protection.
- 5/ Timber value for federal, state, county and private timber is based on three years of average value bid for stumpage on the Mt. Hood National Forest of \$122.55, BLM timber values based on \$129.07 MBF on BLM district. The values have been increased by 35.1% to reflect the value of products delivered to the mill.
- 6/ Tax returns based on 25% of stumpage value returned to counties in lieu of taxes to be used for county schools and roads on National Forest land; 50% return of stumpage receipts on BLM, O&C lands in Clackamas County; 75% return to county on state; total return on county and tax estimate return on private (variable estimate based on Publishers Paper Company, 1974). In Hood River County, BLM lands are not O&C, therefore no receipts go to the county but 5% goes to the state.
- 7/ Based on the Pacific Northwest Experiment Station estimates, 5.63 CMP/MMBF; Payroll, \$51,000/MMBF.
- 8/ Orchard production assumes orchards intensively managed with irrigation. Estimates supplied by Hood River County Agriculture Extension Agent. Value per box based on 1974 sales.
- 9/ Extensive pasture estimates based on nonirrigated hay production. Sources same as above.
- 10/ Intensive pasture based on irrigated pasture alfalfa and fescue. Cost based on 1975 sales. Estimates provided by County Agricultural Extension.
- 11/ Proposed sewers. These are the areas in the lower Highway 26 corridor proposed for sanitary sewers under the respective alternatives, and which correspond to the alternatives discussed in the preliminary sewage collection analysis proposed by ST&R.



**Consultation With Others**





## CONSULTATION WITH OTHERS

The interagency planning effort has focused upon extensive agency involvement and a large number and diverse range of public participation activities. The objective of these activities was to inform and involve all agencies with responsibilities in the area and as many citizens as possible in the development of the Mt. Hood Plan.

Because interagency involvement is fully described in the Introduction and Background sections of this statement, this discussion emphasizes public participation.

### INITIAL INVOLVEMENT ACTIVITIES

After the participating agencies signed the Memorandum of Understanding in June of 1973, a brochure announcing the planning effort was prepared and distributed to interested people, organizations and agencies. In conjunction with release of the brochure, public meetings were held in Sandy and Hood River, Oregon. Also, the Executive Committee appeared on a television question and answer program where the public could call in questions to which they would respond.

Not long after the announcement, a 25 member Citizen Advisory Committee (CAC) was formed. This committee met approximately twice a month starting early in 1974 and donated much time and effort to provide valuable review and comment throughout the planning process.

When the land suitability analysis was completed in the spring of 1974, it was displayed in another brochure along with proposed goals for the plan, jointly developed by the CAC and the Planning Team. A questionnaire requesting public comment on the proposed goals was provided. Between 5000 and 7000 of these brochures were distributed to the public and their availability was publicized in newspaper ads, radio and television spots. The planning team also made presentations to a number of groups and organizations explaining the suitability analysis and proposed goals. Over 400 questionnaires were returned on the proposed goals and was influential in finalizing the goals of the plan.

In March 1975, public participation activities were focused on a brochure outlining four broad land use Futures for the Planning Unit. This brochure also included a citizen response form on which citizens were invited to comment on "Futures" concepts and specific land uses. Three public workshops were held at Parkdale, Welches and Portland, Oregon. At these meetings, interested persons asked questions and provided comment on the Futures. Concurrently, the planning team provided presentations to groups and organizations upon request. A film, describing the Mt. Hood Interagency Plan was prepared by the Public Education Broadcasting Station (PEBS - Channel 10) of Portland, Oregon and was shown on television and at group presentations during the public commenting period and still continues to be used. Several members of the planning team and the Chairman of the Executive Committee appeared on a question and answer television program



on PEBS. Availability of the Futures brochures was publicized in newspapers, radio and television spots.

#### COMMENTS ON THE DRAFT EIS

Following distribution of the Mt. Hood Planning Unit Draft Environmental Statement in March 1976, a series of public informational meetings and hearings were held and availability of the statement was well publicized on television, radio and newspaper announcements. Public hearings were held before the Planning Commissions in Clackamas and Hood River Counties and continued on through the fall as the counties presented Comprehensive Plans for the nonfederal lands in the Planning Unit which were generated as a result of the interagency planning effort.

All input received from March 1 to May 7, 1976, including response forms, oral and written testimony at county public hearings and written comments on the statement were analyzed. The codinvolve system of public input analysis developed by the Pacific Northwest Forest and Range Experiment Station was used. This system enabled coders to record a wide variety of comments and to focus on specific issues and concerns identified by the Interagency Executive Committee. A systematic approach was used to capture the diverse comments received. The analysis was designed specifically to condense and record the varied opinions of respondents and avoid interpretations or evaluations of the public response. A copy of this analysis of general responses to the Draft Environmental Statement is included in Exhibit D of the Appendix. This analysis was used in the revision of the Proposed Plan and Alternatives in the Final EIS for the Mt. Hood Planning Unit.

The section on the Rationale for Selection of the Proposed Plan specifically discusses how public and agency comments affected the revision of the alternatives.

Responses to the Draft Environmental Statement which require substantive discussion are included in two sections: Part 1 addresses specific response letters from agencies and national organizations and Part 2 deals with substantive issues and comments from other respondents by topic. The following criteria were used for determining which comments were substantive: (1) comments related to the land use direction for the Bull Run Planning Unit and (2) comments indirectly or directly asking a question or presenting an opinion about an alternative or which had no bearing on the land use direction for the Planning Unit were not considered substantive, but are included in the "Public Input Analysis of the Draft EIS" included in Exhibit F.

## CHRONOLOGY OF MEETINGS AND HEARINGS FOR MT. HOOD INTERAGENCY PLAN

SPRING 1973	Open meetings in Sandy and Mt. Hood, and media announcements to inform public that the study is being initiated.
FALL 1973	Formation of the Citizen Advisory Committee for the Planning Unit. Committee continued to meet on a bimonthly and then monthly basis throughout the planning process at different locations in the area.
WINTER 1974	Meetings in Hood River, Portland and Hoodland area to discuss the Land Suitability Analysis and Planning Unit objectives.
FEBRUARY 1975	Workshops on Mt. Hood Futures with slide show and film at Hood River and the Hoodland area.
MARCH 2, 1976 8, 1976	Joint Planning Commission and Board of County Commissioners meetings in Clackamas and Hood River Counties.
MARCH 25, 1976 26, 1976	Informational meetings on Draft EIS in Parkdale, Zigzag and Gresham.
APRIL 6, 1976	
APRIL 7, 1976	Hood River County Planning Commission Public Hearing on Plan at Mt. Hood.
APRIL 26, 1976	Clackamas County Planning Commission Public Hearing on Plan at Welches.
APRIL 28, 1976	Joint County Planning Commission Public Hearing in Gresham.
MAY-DECEMBER 1976	Numerous hearings and meetings throughout the area in both counties on approval of revised County Comprehensive Plans.
NOVEMBER 8, 1976	Clackamas County adopted Mt. Hood Community Plan.
DECEMBER 1976	Hood River County Board of Commissioners adopted Mt. Hood Planning Unit Plan.
JUNE 13, 1977	Hood River County Board gives final approval to plan.



## RESPONDENTS

The following agencies, organizations and businesses provided input to the Mt. Hood Planning Unit Draft Environmental Statement.

### Part 1 - Agencies

#### Federal Agencies

- Advisory Council on Historic Preservation
- Department of Agriculture
  - Soil Conservation Service
- Department of Commerce
  - National Oceanic and Atmospheric Administration
- Department of Housing and Urban Development
- Department of the Interior
  - Bonneville Power Administration
  - Bureau of Land Management
- Environmental Protection Agency
- Federal Power Commission
- National Aeronautics and Space Administration

#### Congressional Delegation

- Al Ullman, House of Representatives

#### State Agencies - Oregon

- Department of Fish and Wildlife
- Department of Forestry
- Department of Geology and Mineral Industries
- Department of Land Conservation and Development
- Department of Transportation
- Intergovernmental Relations Division
- Soil and Water Conservation Commission
- State Historic Preservation Officer

#### County Agencies

- Clackamas County Public Works Department
- Mid-Columbia Economic Development District
- Multnomah County Division of Planning and Development
- Wasco County Planning Office

#### National Organizations

- Friends of the Earth
- Sierra Club

**FEDERAL POWER COMMISSION**

REGIONAL OFFICE  
555 BATTERY STREET, ROOM 415  
SAN FRANCISCO, CALIF. 94111

March 18, 1976

Mr. F. Dale Robertson  
Forest Supervisor  
Mt. Hood Planning Unit  
2440 S. E. 195th Street  
Portland, Oregon 97233

Dear Mr. Robertson:

This is in response to your letter of March 1, 1976 requesting our comments on your draft environmental statement for the Mt. Hood Planning Unit Proposed Interagency Plan, dated January 1976.

As described in your draft, the proposed plan is oriented toward improving efficiency of land use in the area by concentrating development in areas already committed, providing adequate support services, increasing agricultural and timber productivity and maintaining the overall mountain character. A balance of use is emphasized, minimizing external costs of development upon the public.

We have reviewed the draft to determine the effect on matters affecting the Commission's responsibilities. Such responsibilities relate to the development of hydroelectric power and assurance of the reliability and adequacy of electric services under the Federal Power Act, and the construction and operation of natural gas pipelines under the Natural Gas Act.

Our review indicates that your proposals would not affect any existing electric power or natural gas facilities under the jurisdiction of the Federal Power Commission, and would not appear to have any effect on the future development of supplies and transmission of electric power or natural gas.

Sincerely,

*Frank Thomas*  
M. FRANK THOMAS  
Regional Engineer



National Aeronautics and  
Space Administration  
Washington D C  
20546

Reply in Attch of  
ADA-1

March 23, 1976

Executive Committee  
Mt. Hood Planning Unit  
2440 S.E. 195th Avenue  
Portland, Oregon 97233

Gentlemen:

Thank you for the opportunity to comment on the "Mt. Hood Planning Unit Draft Environmental Statement."

We have no special expertise or jurisdiction in this area and are returning this draft without comment.

Sincerely yours,

*Nathaniel B. Cohen*  
Nathaniel B. Cohen, Director  
Office of Policy Analysis

Enclosure



AL ULLMAN  
2nd DISTRICT, OREGON

*of*  
*for*

**Congress of the United States**  
**House of Representatives**  
Washington, D.C. 20515

April 1, 1976

CHAIRMAN, COMMITTEE ON  
WAYS AND MEANS  
JOINT COMMITTEE ON  
INTERNAL REVENUE TAXATION

44

Mr. Dale Robertson, Chairman  
Executive Committee  
Mt. Hood Planning Unit  
2440 S.E. 195th Avenue  
Portland, Oregon 97233

Dear Mr. Robertson:

Thank you for sending me a copy of the draft environmental statement for the Mt. Hood Interagency Planning unit and the EIS summary. I am aware of the cooperative effort that has gone into preparing this statement and I certainly appreciate having a copy for future reference.

Again, thanks for being in touch.

Best regards,

Sincerely,

*Al Ullman*

AU/aw



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

REGIONAL OFFICE M/S 317  
ARCADE PLAZA BUILDING, 1321 SECOND AVENUE  
SEATTLE, WASHINGTON 98101

April 8, 1976

REGION X  
Office of Community  
Planning & Development

Mr. Dale Robertson, Supervisor  
Mt. Hood National Forest  
2440 S.E. 195th Avenue  
Portland, Oregon 97233

Dear Mr. Robertson:

Subject: Mt. Hood Planning Unit  
Proposed Interagency Plan  
Draft Environmental Statement

We have reviewed the statement on the proposed Interagency Plan and assessment on the Corridor Sewerage Facilities Plan.

The proposed plan is a representation of a course of action for dealing with land use problems and needs within the Mt. Hood area in Oregon.

We find the goals you have stated in your summary consistent with our departmental goals. More specifically, we concur with your statement on the impact of the plan on future housing.

One area that we feel should be expanded is the impact of noise on residential areas. On your summary sheet you indicate that log hauling will increase traffic and noise near residential areas. The statement proper does not identify where these areas would be or the levels of noise to be expected.

With the above exception your statement adequately covers our areas of concern.

Thanks for the opportunity to comment.

Sincerely,

  
Robert C. Scalia  
Assistant Regional Administrator

68

chs fup IN REPLY REFER TO  
10D

The impact of noise on residential areas is addressed in the Final EIS under the section on the Environment and impacts described for each of the alternatives (on pages 40, 149 and 199.





# MULTNOMAH COUNTY OREGON

DIVISION OF PLANNING AND DEVELOPMENT  
2115 SE MORRISON  
PORTLAND, OREGON 97214  
503/248-3591

COUNTY COMMISSIONERS  
DON CLARK, Chairman  
DAN MOSE  
ALICE CORBETT  
DENNIS BUCHANAN  
MEL GORDON

*apl sub*

84

71

April 9, 1976

Mr. John White  
U.S. Forest Service  
Mt. Hood Planning Unit  
2440 S.E. 196th Avenue  
Portland, Oregon 97233

Dear Mr. White:

The study process which has been utilized for this plan is commendable and the inter-governmental coordination and opportunities for citizen input have surpassed the usual inter-agency planning study. Multnomah County, being the location of a great many recreationists utilizing the resources of the Mt. Hood study area, has great interest in the maintenance of both the continued diversity of recreation opportunities and the retention of the areas carrying capacity.

The proposed plan is viewed to be acceptable as it provides a mix of uses which satisfies no one particular interest group at the exclusion of others. The provisions related to strip development, residential and commercial, in the corridor area of Highway 26 would substantially alter the scenic character of the mountain approach and would be detrimental to the residents and passers-through. While the implementation of the plan is the responsibility of Clackamas County, the plan should contain strong policy statements prohibiting such a land use pattern.

Public lands close to metropolitan centers which offer recreation opportunities for great numbers of people will become even more valuable and subject to greater pressures in the future as the mobility of people increases due to energy considerations. The plan, in the alternative proposal however, places an emphasis on the ability of the Mt. Hood area to provide short run economic returns. We find the provisions of Alternative B more in tune with the concept of conserving resources for their

Regulation of private development in the Highway 26 corridor is the responsibility of Clackamas County. In the recently adopted Mt. Hood Community Plan the county has identified land uses, permitted densities and growth boundaries for the west side mountain area communities. The plan includes policy statements regarding development standards, and prevention of strip development. In addition, the county identified the area seen from Highway 26 as high visual resource and encourages protection of scenic values in this area.

long run benefits. Specific examples of this are the smaller size of the lands to be utilized by the commercial downhill ski enterprises, larger dispersed recreation areas, and less planned resort at Government Camp.


The immediate slopes of Mt. Hood have a value that is irreplaceable and a vulnerability to the activities of man. The course of action should not be to provide all the possible types of recreation facilities to satisfy all interests, but rather to judge the long term effects of those activities on the mountain environment. One of the goals of the plan is that no one use should dominate the scene, which would indicate that not all flat areas suitable for more intensive development should be developed for just high density, intensive uses. The quality of recreation experience is important as is the ability of the physical environment to retain its unique character. As the Mt. Hood Corridor is man modified to support recreation activities which require substantial facilities, it loses its ability to support recreation activities which rely on the natural system.

Basically, the proposed alternative is supported, but modifications should be considered which place greater emphasis on the ability of the public lands to provide long term, high quality recreation experiences. Short term modifications which guarantee greater economic gains or respond to simple demand rates based on current participation patterns should not be the primary considerations.

If you have any questions, please contact Lorna Stickel, at 248-5264.

Sincerely,

MULTNOMAH COUNTY DIVISION OF  
PLANNING AND DEVELOPMENT

  
Adrienne Brockman,  
Comprehensive Planning Manager

The intent of the environmental capacity approach used in this planning effort has been long term protection of the area's values for all types of uses. The quality and types of recreational use available over the long term is extremely important and is discussed in greater detail in the Final EIS. In reviewing future recreational needs projections from the State Comprehensive Outdoor Recreation Plan (SCORP) and the Pacific Northwest River Basins Commission were considered.



UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

16th Floor, 1220 S. W. Third, Portland, Oregon 97204

April 13, 1976

Mt. Hood Planning Unit  
Executive Committee  
2440 S. W. 195th Avenue  
Portland, Oregon, 97233

Attention: F. Dale Robertson, Supervisor  
Mt. Hood National Forest

Dear Mr. Robertson:

We have reviewed the draft Environmental Statement for the  
Proposed Interagency Plan, Mt. Hood Planning Unit and have no  
comments to offer.

We appreciate the opportunity to review and comment on this  
proposal.

Yours truly,

*Guy W. Nutt*  
Guy W. Nutt  
State Conservationist

cc: Office of the Coordinator of  
Environmental Activities  
Administrator, SCS, Washington, D.C.  
Chairman, Council on Environmental  
Quality (5)





**FORESTRY  
DEPARTMENT**

*clb Luf*

(91)

**CLACKAMAS MARION DISTRICT**

RT. 4, BOX 595 • MOLALLA, OREGON • 97038 • Phone 382-  
April 20, 1976

Tom Telford  
Clackamas County Commissioner  
Room 201, Courthouse  
Oregon City, Oregon 97045

David W. Porter  
County Planning Commission  
County Courthouse  
Hood River, Oregon 97031

Jerry Routson  
Hood River County  
Rt. 1, Box 948  
Hood River, Oregon 97031

✓ John White  
Mt. Hood National Forest  
2440 SE 195th  
Portland, Oregon 97233

Ken Dauble  
Clackamas County Planning Dept.  
940 Warner Milne Road  
Oregon City, Oregon 97045

Rich Bowers  
Oregon State Forestry Dept.  
3701 W. 13  
The Dalles, Oregon 97058

Gentlemen:

After a quick review of the Mt. Hood Planning Unit, Proposed Inter agency Plan, Draft Environmental Statement, I want to make the following comments.

First, I feel that it is essential that any Plan that is finally adopted by the Counties, must recognize that forest management activities on all privately owned lands, both inside and outside of the National Forests, are regulated by the Oregon Forest Practices Act.

It is implied that the U.S.F.S. "Visual Resource Management" guidelines or the "Scenic Forest" zoning restrictions are to be applied to these private lands. We are of the opinion that it does not. We have been given a preliminary opinion by the Attorney General that the Oregon Forest Practices Act retains this authority. To quote two paragraphs from the preliminary opinions of Louis S. Bonney, Assistant Attorney General.

QUOTE FROM LETTER OF NOVEMBER 28, 1972

"A county zoning body would have the right to prohibit logging or lumbering within certain zones but the manner of logging such as clear cutting would appear to be a matter solely within the rules of the Forest Practices Act. In other words a zoning body has the right to prohibit certain activities

The Final EIS clearly indicates the difference between management requirements on federal and non-federal lands in Oregon.

The Comprehensive Plans for private, county and state lands in the Planning Unit adopted by Clackamas and Hood River Counties did not use the Scenic Forest (Roaded Recreation) land category proposed in the Draft EIS. Therefore, in the Final EIS all non-federal commercial forest lands are identified as General Forest, and will be managed under the regulations of the State of Oregon Forest Practices Act.



- 2 -

within a specified zone but if the activity (logging) is allowed at all the manner in which it is performed falls within the Forest Practices Act which has preempted the field.

QUOTE FROM LETTER OF NOVEMBER 7, 1975

Under ORS 527.630, the legislature expressed the State's policy in regard to forest practices. As noted in subsections (2) and (3), the legislature recognized that operations on forest lands were subject to many other agency regulations, and in order to provide a mechanism to coordinate and harmonize regulations pertaining to forest land operations, Forestry was designated as the agency to promulgate Forest Practice Rules to protect the public interest and welfare. In view of that specific declaration of policy, it is our opinion that where Forestry has promulgated rules with relation to construction of logging roads, the State has preempted the field and Lane County has no authority to impose any further regulations with relation to such practices.

Also, I am certain that the governing bodies of the involved Counties are, or surely will be concerned with maintaining a level of timber production and its related economic benefits. To maintain this production level in Oregon, it is essential that all lands be managed to their highest potential. The high emphasis on "Scenic Management" is surely going to conflict with this timber production goal.

In light of these facts, I will make two recommendations:

1. That the Oregon Forest Practices Act be clearly identified as the governing authority over all forest management activities on all lands, except federal.
2. That the Counties investigate the economic impact that would result from any reduction in the producing forest land base.

Very truly yours,

CB:nf

*Chan Bunke*  
Chan Bunke, District Forester

In preparing the Final EIS, the Forest Service prepared a Social and Economic Description of the Mt. Hood Planning Unit to augment the economic analysis in the Draft Statement.

## WASCO COUNTY PLANNING OFFICE

WASCO COUNTY COURTHOUSE ANNEX B, ROOM 122  
502 E. 5th STREET THE DALLES, OREGON 97038

RONALD I. BAILEY, Director of Planning

PHONE: (503) 298-5169

April 19, 1976

92

Mr. Dale Robertson  
Supervisor, Mt. Hood National Forest  
2440 S. E. 195th Avenue  
Portland, Oregon 97233

Dear Mr. Robertson:

We have completed a review of the Draft Environmental Statement for the Mt. Hood Planning Unit. The conclusions and proposed plan appear reasonable and well conceived. The Mt. Hood Planning Unit is significant to the residents of Wasco County for recreation, transportation, and timber yield. Opinion regarding the optimum use of the Planning Unit lands is diverse. For that reason, this office will refrain from commenting on the conclusion of the plan, and will concentrate on our concerns as a review agency of the Draft Environmental Statement.

The Draft Environmental Statement was found to be difficult to review. The preparation of a summary document for distributing to the general public was an excellent method for presenting the concepts of the statement. With the publication of a summary document, however, we anticipated that the Draft Statement would contain extensive technical information and documentation. We were somewhat dismayed, therefore, to discover that the elements pertaining to the environment, for instance, contained little more than summary information. The reference to detailed inventories maintained at the Forest Supervisor's office permitted little understanding of the resources contained in the Planning Unit.

We acknowledge that much of the inventory information has been compiled by methodologies that do not readily permit incorporation into a statement text. Incorporation into the statement text, however, of the material developed in the special reports identified in Exhibit H of the appendix, and other material contained in the appendix, would have been feasible and would have facilitated better comprehension of development options and constraints. We find that the intent of the National Environmental Protection Act and the Oregon Revised Statutes, as contained in Chapter 197, was to provide a decision making process based on factual data. The effective presentation of information is essential to the application of that process.

The final EIS contains more detailed information on some resources and activities. As in the Draft EIS, inclusion of the volumes of additional information available was not felt to be necessary for most readers.

Findings made in the special reports were summarized in the Appendix section on Environmental Capacity in the Draft EIS and appear again in Exhibit G.



Mr. Dale Robertson

-2-

April 19, 1976

Several questions are raised by the text of the Draft Statement. In reference to the planning programs of Wasco County, the implications of these questions are significant.

Goal Number 8 of the Land Conservation and Development Commission requires that "State and federal agency recreation plans shall be coordinated with local and regional recreational needs and plans". The goal provides a guideline that the State Comprehensive Outdoor Recreation Plan be utilized for the development of standards. The Draft Environmental Statement does not identify what types of recreational user demand must be accommodated within the Planning Unit. What allocation of land areas according to the Bureau of Outdoor Recreation classification system or the modified Oregon State classification system will be achieved in the Mt. Hood Planning Unit? The State Comprehensive Outdoor Recreation Plan identifies acquisition needs by BOR class for each administrative district through the year 1990. How many acres of BOR Class I, II, and III land will be retained in the Mt. Hood Planning Unit in relation to Oregon Administrative District 9 needs?

The plan proposes the future creation of three new golf courses within the Planning Unit. We question the need for recreational opportunities within the unique setting of the Mt. Hood Planning Unit that can be acquired within urban areas.

The proposed plan allocated a relatively large land base for wilderness preservation. The draft plan identifies the number of acres and acres of roadless and wilderness areas within 100 miles of the Portland metropolitan area. In what manner is a 100 mile radius significant to wilderness use or preservation? The extent of wilderness is obviously predicated on supply, not location.

The proposed plan projects a residential growth of 2.3 to 4.1 times the present population. Is it possible to maintain high quality wilderness experiences adjacent to heavy population concentrations? The parallels between the development areas and wilderness lands of the Mt. Hood Planning Unit to the Lake Tahoe Basin and the Desolation Valley Wilderness of California are significant.

With regard to fire management, it is our concern that the Draft Environmental Statement needs to be expanded to address structural protection as well as wild-land protection. The construction of more residences and commercial facilities will produce demands for structural protection. It is also our observation that aesthetic desires by residents of the area may result in the utilization of flammable building materials such as wood

The State Comprehensive Outdoor Recreation Plan (SCORP) was considered and coordinated with in the development of the Proposed Plan and Alternatives. The description of recreation in the Planning Unit on pages discusses the types of recreational needs anticipated and the various roles of private development and public agencies to provide for those needs. Each of the alternatives discusses proposed recreation opportunities. In the revised SCORP now being prepared, the Forest Service's role has been clarified as providing primarily primitive recreational opportunities.

The Mt. Hood Interagency Plan and Alternatives do not propose the creation of three additional golf courses. Reference is made to a study done for the BLM which identified the need for additional golf courses in the Mt. Hood area.

One of the many factors considered in reviewing areas for Wilderness potential is the availability of other similar areas. The Rationale for Selection of the Proposed Plan describes the criteria used in reviewing for wilderness suitability.

Projected population levels adopted in the County Comprehensive Plans will range from 2.6 to 3.1 times the present seasonal and year-round population. Potential impacts to vegetation, wildlife and the quality of recreational experiences are discussed in the Final EIS on pages

The Final EIS addresses structural fire management on pages 77, 132, 140 and are also discussed in the Draft EIS.

Mr. Dale Robertson

-3-

April 19, 1976

and shakes. This may increase the fire hazard, without architectural or site design consideration. The creation of fire protection districts may be as important to the capacity of the area as sewer treatment plants. The statement should also address protection methods for unique sites such as Timberline Lodge and Cloudcap Inn.

The vegetative element of the Draft Statement utilizes genus and species names for understory vegetation. The timber management element, however, does not identify tree species other than by common names. The utilization of scientific names for all elements would be advantageous for the review of the statement by individuals presently unfamiliar with the forest types of the Mt. Hood Planning Unit.

The proposed plan projects a harvest of 27,769 MBF to 47,289 MBF, depending upon the applications of "accelerated" management. The present acreage of commercial National Forest land within the Planning Unit is given at 60,500 acres with an allowable cut of 23,500 MBF. The proposed plan does not indicate the implications or the environmental effects of the adoption of intensive forestry practices as opposed to present management techniques. To suggest that the Planning Unit has the capacity to yield 47,289 MBF of timber per year without analyzing the consequences to other land use allocations would seem to defeat the purpose of the Environmental Statement. What form of transportation system would be required to support an accelerated program? Would this require pre-logging? What impact would an accelerated timber and road construction program have on the County receipts, on visual resources, or on water quality?

The graphics presented in the Draft Environmental Statement, with the exception of the land suitability map, appear to be inadequate due to scale. Determination of the extent and location of small private ownerships less than 5 acres in size for instance, at a scale of  $\frac{1}{4}$ " to the mile is impossible. It is the opinion of this office that the minimum base for graphic presentation should be 1" to the mile, and preferably larger. The presentation of graphics is disturbing in that the Draft Environmental Statement is intended to supersede the preliminary plan for the Mt. Hood Corridor of Clackamas County, which contained excellent visual presentations. This office has found that the presentation of material of professional appearance is often as important as the content of the presentation in obtaining public acceptance.

The preparation of the Environmental Statement for the Mt. Hood Planning Unit is a significant achievement in the land use

Fire protection for the developed recreation areas not currently in fire protection districts is described on pages 77 and 78.

The present allowable cut referred to National Forest lands only. The harvest range applied to all lands suitable for harvest within forest land use designations.

All environmental impacts were assessed based on intensive harvest levels.

The map scale was chosen to describe the resources and characteristics primarily for the purposes of selecting a plan for BLM and National Forest lands. Specific direction on private, county and state lands will continue to be their adopted comprehensive plans and ordinances; they are not superseded by this document. Review of specific projects on federal lands will be made on the larger 1"=1 mile scale maps on which all the base data was recorded.



Mr. Dale Robertson


-4-

April 19, 1976

planning history for the State of Oregon. The voluntary consideration of local, state and federal agencies to achieve a coordinated land use planning process is an example to be imitated elsewhere. This office is aware of the volume of cooperative work achieved by Hood INPUL, and is extremely encouraged by the attitude of federal and state administrators to cooperate with local planning efforts.

I trust that these comments will be of value in the preparation of the final Environmental Statement.

Sincerely

  
RONALD T. BAILEY  
Director of Planning

RTB:ds

Advisory Council  
On Historic Preservation

1522 K Street N.W.  
Washington, D.C. 20005

o/s JWP

1111

April 23, 1976

Forest Supervisor  
Mt. Hood National Forest  
2440 SE 195th  
Portland, Oregon 97233

Dear Sir:

This is in response to your request of March 22, 1976 for comments on the draft environmental statement (DES) for the Mt. Hood Planning Unit Interagency Land Use Plan, Clackamas County, Oregon. Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1969, the Advisory Council has determined that this DES does not demonstrate compliance with Section 106 of the National Historic Preservation Act of 1966, or with the provisions of Executive Order 11593, "Protection and Enhancement of the Cultural Environment" of May 13, 1971, with regard to this proposal. However, it appears that the Forest Service recognizes its responsibilities pursuant to Section 106 and Executive Order 11593 and will carry them out in the future. Should this proposal be approved, the Council looks forward to working with the Forest Service in accordance with the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) as appropriate.

Should you have any questions or require any additional assistance, please contact Brit Allan Storey of the Advisory Council staff at P. O. Box 25085, Denver, Colorado 80225, telephone number FTS 234-4946.

Sincerely yours,

*Louis S. Wall*

Louis S. Wall  
Assistant Director, Office  
of Review and Compliance

The discussion of cultural resources has been expanded in the Final EIS to meet these requirements and to provide a better basis for decision-making. The Final EIS describing cultural resources and potential impacts has been reviewed and approved by the State Historic Programs Coordinator.

*The Council is an independent unit of the Executive Branch of the Federal Government, created by Public Law 91-644, October 13, 1968, and is the President and Congress on the field of Historic Preservation.*





## U.S. ENVIRONMENTAL PROTECTION AGENCY

## REGION X

 1200 SIXTH AVENUE  
 SEATTLE, WASHINGTON 98101

 REPLY TO 10FA - M/S 623  
 ATTN OF

April 29, 1976

 Mr. Dale Robertson  
 Forest Supervisor  
 Mt. Hood National Forest  
 2440 SE. 195th  
 Portland, Oregon 97233

Dear Mr. Robertson:

We have completed review of your draft EIS, "Mt. Hood Planning Unit" and offer the following comments.

Although the statement appeared adequate in most areas, that information pertaining to problem areas of the unit, e.g., fisheries and soil hazards and the management prescriptions necessary for mitigating impact of development on these problem areas is sparse and vague. The fact that the plan is an interagency document and that the unit contains much private timber land is undoubtedly a factor in the formulation and presentation of prescriptions. It is not clear, however, why such management guidance is not presented for Federal controlled lands scheduled for development. There is also a noted absence of information pertaining to harvest methods to be employed on hazardous land types and in stream side management zones. These aspects should be covered in the Final EIS.

Items such as stream and well surveys and classification, surface and groundwater studies, monitoring requirements, water quality standards and effluent limitations, and completed intensive soil surveys were well covered in the statement.

Our comments on this draft environmental impact statement have been classified LO-1, LO (Lack of Objections) 1 (Adequate Information). The classification of the Environmental Protection Agency's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our review of proposed Federal actions.

Thank you for the opportunity to comment on this draft environmental impact statement.

Sincerely,

 Walter D. Jaspers  
 Director  
 Office of Federal Affairs

Management prescriptions for mitigating impacts are discussed further under the impacts sections for each alternative. However, designation of specific mitigation measures will be determined as a part of the analysis of proposed projects or activities on specific sites. On lands under county jurisdiction, these mitigating measures will often be conditions upon the approval of a permit or plan or zone change. On National Forest and BLM lands, mitigation will be determined through the EAR and EIS process for specific projects.

Harvest methods used in hazardous areas and streamside management zones are discussed generally on pages Selection and detailing of mitigating measures will be made when specific sites are considered for harvest on federal lands. In other areas, mitigating measures would follow the requirements of the State Forest Practices Act.

272



## Parkdale Volunteer Fire Department

Parkdale, Oregon

April 27, 1976

279

To whom it may concern:-

The Parkdale Rural Fire Protection District wishes to state their position in regard to the Mt. Hood planning unit.

The North portion of this proposed unit lies within the boundaries of the Parkdale Fire District. We also have a mutual aid agreement with the State Forestry and a working agreement with the U.S. Forest Service for any emergency which may arise in the bordering areas.

The Parkdale Fire Department is an all volunteer organization of forty members who are all volunteer and no one receives any pay for his services as a fireman. These men respond to any emergency immediately, whether it be fire, rescue or ambulance service. The Parkdale Ambulance answers calls as far south as Highway 26 and as far east and west as terrain and demand dictates.

The Parkdale Fire District is very proud of the more than one hundred fire hydrants within the District. These hydrants are fed from waters provided by Crystal Springs Water District, Middle Fork Irrigation District and the Parkdale Water System.

All of the water furnished within the Crystal Springs Water System was and is a tributary of the East Fork of Hood River. The waters of the East Fork of Hood River have prior filings to the East Fork Irrigation District and the Mt. Hood Irrigation District. Some of these filings date back to before the turn of the century.

We have been advised by the State Engineers Office that these prior filings have priority over all others.

During years of small snow pack and resulting low stream run off there has not been enough water to fulfill the demands of these prior filings. For example the years of 1934 and 1973 with several years scattered over this forty year period there has been an acute shortage.





2

## Parkdale Volunteer Fire Department

Parkdale, Oregon

279

These facts are documented and can verified by the State Engineers Office.

It is our belief that no greater demand should be made on these water sources. In all fairness to any sizeable developments and to the present users. These facts should be carefully considered.

Any fire service is only as efficient as its water supply and any over taxing of a water supply will place their efficiency in jeopardy. The Parkdale, Odell and Pine Grove Fire Districts depend on the Crystal Springs Water District for a major portion of their water supply.

Any sizeable development within the area and the adjacent area will place additional burden on the Fire Districts involved.

As we all know the six per cent tax limitation does not take care of inflation let alone additional commitments.

We believe that a Volunteer Fireman should not be asked to protect the lives and property of another's second home when in many cases he does not own a home of his own.

Very truly yours,

Parkdale Rural Fire Protection District.

*Lavern Hatfield*  
Lavern Hatfield Board Chairman

Regulation of development on private lands will be the responsibility of Hood River County. They have specific requirements which require adequate facilities to be provided before development is permitted. Ground water sources may be used to augment domestic water supplies.



## EXECUTIVE DEPARTMENT

### INTERGOVERNMENTAL RELATIONS DIVISION

240 COTTAGE STREET S.E. • • • SALEM, OREGON

April 30, 1976

ROBERT W. STRAUB  
GOVERNOR  
STAFFORD HANSELL  
Director

F. Dale Robertson, Supervisor  
Mt. Hood National Forest  
Mt. Hood Planning Unit  
2440 S.E. 195th Avenue  
Portland, Oregon 97233

Dear Mr. Robertson:

Re: Proposed Interagency Plan  
PNRS #7603 4 240

Thank you for submitting your draft Environmental  
Impact Statement for State of Oregon review and comment.

Your draft was referred to the appropriate state  
agencies. Soil and Water Conservation Commission, Depart-  
ment of Geology, Department of Transportation, Land Conserva-  
tion and Development Commission, and Department of Forestry  
offered the enclosed comments which should be addressed in  
preparation of your final Environmental Impact Statement.

We will expect to receive copies of the final statement  
as required by Council of Environmental Quality Guidelines.

Sincerely,

William H. Young  
Administrator

WHY:lm  
Enclosures

281





# OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

## STATE CLEARINGHOUSE

Intergovernmental Relations Division  
240 Cottage Street S.E., Salem, Oregon 97310  
Ph: 378-3732

## PNRS STATE REVIEW

Project #: 7603 4 240 Return Date: APR 09 1976

### ENVIRONMENTAL IMPACT REVIEW PROCEDURES

1. A response is required to all notices requesting environmental review
2. OMB A-95 (Revised) provides for a 30-day extension of time, if necessary. If you cannot respond by the above return date, please call the State Clearinghouse to arrange for an extension.

### ENVIRONMENTAL IMPACT REVIEW DRAFT STATEMENT

( ) This project does not have significant environmental impact.

( ) The environmental impact is adequately described.

☒ We suggest that the following points be considered in the preparation of a Final Environmental Impact Statement regarding this project.

( ) No comment.

### REMARKS

The proposed plan is considerably limiting on general forest production and will have a serious economic impact on the area.

We would recommend that the plan be altered to include additional general forests similar to that included in alternative A; still retaining other features of the proposed plan. There appears to be adequate protection of natural resources in the plan if revised as suggested.

The counties have adopted plans which designate all private, county and state commercial forest lands as General Forest.

Agency

Soil & Water

BY

[Signature]



# OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

## STATE CLEARINGHOUSE

Intergovernmental Relations Division  
240 Cottage Street S.E., Salem, Oregon 97310  
Ph: 378-3732

RECEIVED FILED  
MAR 16 1976  
U.S. DEPT. OF AGRICULTURE

PNRS STATE REVIEW

APR 5 1976

Project #: 7603 4 240 Return Date: APR 09 1976

### ENVIRONMENTAL IMPACT REVIEW PROCEDURES

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2. OMB A-95 (Revised) provides for a 30-day extension of time, if necessary. If you cannot respond by the above return date, please call the State Clearinghouse to arrange for an extension.

### ENVIRONMENTAL IMPACT REVIEW DRAFT STATEMENT

- ( ) This project does not have significant environmental impact.
- ( ) The environmental impact is adequately described.

(X) We suggest that the following points be considered in the preparation of a Final Environmental Impact Statement regarding this project.

- ( ) No comment.

### REMARKS

I am enclosing a memorandum submitted by Richard G. Bowen, private consulting geologist, concerning the Mt. Hood Planning Unit Proposed Interagency Plan.

Mr. Bowen has been involved in research and exploration of geothermal systems, and I consider him one of the most knowledgeable professionals presently in the field.

I hope that the Federal agency will give the matter the serious consideration it deserves.

Agency Geology BY R. G. Bowen

This report was helpful and the Final EIS has been modified to reflect some of the information provided.



RICHARD G. BOWEN, GEOLOGIST  
CONSULTANT IN GEOTHERMAL

852 N ALBEMARLE TERRACE  
PORTLAND, OREGON 97210

(503)223-0040

Comments on

Mt. Hood planning Unit PROPOSED INTERAGENCY PLAN

Considering the potential importance of geothermal energy development in the Mt. Hood area, I don't believe there was sufficient consideration of the benefits that the utilization of this resource could mean to Mt. Hood Planning Unit and to the region. Also, the statement on page 158 that "Geothermal development has a high potential to cause water quality problems in the planning unit from soil and slope disruption and waste water disposal" does not take into account that existing federal and state requirements for the drilling and development of geothermal resources protect the ground water and surface resources. The rationale for the general policy statement on page 103 that geothermal exploration shall be limited to the Old Maid Flats and that development of steam would not be permitted is not given further documentation nor discussion in other sections of the draft Environmental Statement.

The severe restrictions proposed to be placed on geothermal energy exploration and development under the proposed plan and the prohibition under alternative B is not within the best interests of the residents and users of the area and neither is it in the interests of other Oregonians or of the United States.

I believe it is in the best interests of all to set up guidelines for development and use, as is the purpose of the Mt. Hood Planning Unit, but not prohibition. Geothermal energy developments can be compatible with many existing and projected land uses within the region. A geothermal electric power plant capable of supplying all of the electricity needed in the planning unit could be built in many of the valleys and use no more space than that taken up by an existing power substation now used to switch power from other regions into the area. The wells necessary to produce the geothermal fluids also only require a minimal amount of area. Drilling and production

This statement has been revised in the Final EIS to reflect agency requirements as well as the potential range of development intensity associated with geothermal resources.

The Final EIS includes a more thorough discussion of geothermal development and discusses specific development standards.

technology has successfully completed oil and gas wells in such diverse places as downtown Galveston, Texas, and in Long Beach and Beverly Hills, California. The fluids produced by geothermal wells are far easier to handle than are oil and gas yet the benefits to the region are similar. They produce useful energy and financial benefits to the region. A geothermal power plant makes a major contribution to the tax base of the region where it is located in addition to paying rents and royalties for the energy. If sufficient geothermal energy can be developed, it can be exported from the region in the form of electricity to pay for much of the other energy forms - oil and gas that is now required in the region. The fact is that geothermal power can produce electricity at a minimal environmental price - only a fraction of that required by hydro, nuclear or fossil fuel systems, and they do not cause the massive displacement of resources nor require the complex construction and complex support systems necessary for competing types of power supply systems.

If the geothermal fluids in the region do not contain enough heat to be used for electric power production, there is every reason to believe that there will be an abundance of hot waters sufficient for space heating and by development could provide a large amount of the heating requirements of the Mt. Hood Planning Unit. The oil required for space heating in Government Camp and in the nearby ski areas, Multapore-Ski Bowl, Mt. Hood Meadows, and Timberline Lodge, is a major economic and environmental burden on the Unit. A few geothermal wells could handle the heating needs of the ski areas and a district geothermal heating system such as presently existing in Boise, Idaho, could provide for the needs of Government Camp. On page 30 in the appendix the report points out that the heating needs of the Unit at projected capacity is 995 x 10<sup>9</sup> annual BTUs. If this is true, the Unit will have to import between 150,000 and 200,000 barrels of oil a year at a present cost of 2 to 4 million dollars just to keep warm. Geothermal heating could reduce this financial burden by 60 to 80% within the next ten years and at the same time greatly decrease the load of smoke and combustion products now released in the Unit.

Those persons who have proposed that geothermal exploration and development be restricted or prohibited in the Mt. Hood Planning Unit

are either very short sighted or misunderstand the effects of the development and use of geothermal energy sources. The fact is the geothermal energy production could be compatible with existing and projected uses in most of the area and every effort should be made to utilize it in the Mt. Hood Planning Unit. The development of the geothermal resources of the Unit could be of significant importance and help to the Unit, the Region and the Nation. These benefits must not be withheld by an arbitrary decision.





# OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

## STATE CLEARINGHOUSE

Intergovernmental Relations Division  
240 Cottage Street S.E., Salem, Oregon 97310  
Ph: 378-3732

## PWRS STATE REVIEW

Project #: 76034240 Return Date: APR 09 1976

### ENVIRONMENTAL IMPACT REVIEW PROCEDURES

1. A response is required to all notices requesting environmental review.
2. OMB A-95 (Revised) provides for a 30-day extension of time, if necessary. If you cannot respond by the above return date, please call the State Clearinghouse to arrange for an extension.

### ENVIRONMENTAL IMPACT REVIEW DRAFT STATEMENT

- ( ) This project does not have significant environmental impact.
- ( ) The environmental impact is adequately described.
- ( ) We suggest that the following points be considered in the preparation of a Final Environmental Impact Statement regarding this project.
- ( ) No comment.

### REMARKS

Although the State Forestry Department is identified as one of the "Planning Team Participants," the Department does not approve all elements of the proposed plan. In particular, the requirements under the proposed scenic forest category are not established to the extent necessary to determine what may or may not be done on these lands. Although not spelled out, there would apparently be restrictions on these lands which would reduce wood production. The scenic forest areas include both private and federal forests. The adverse effects on productivity which would result from this proposal would be greatly reduced if the unit boundary were moved eastward to the Range line between R6E and R7E, thereby retaining much of the prime forest land for the purpose of producing wood.

Agency

Foresty

BY

Phil Boye

In the Final EIS, no private, county or state forest lands were included in the Roaded Recreation (Scenic Forest) category. In recently revised comprehensive plans, Clackamas and Hood River Counties designate the forest lands under their jurisdiction as General Forest and rely on the State Forest Practices Act for regulation.



# OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

## STATE CLEARINGHOUSE

Intergovernmental Relations Division  
240 Cottage Street S.E., Salem, Oregon 97310  
Ph: 378-3732

DEPARTMENT OF  
LAND AND CONSERVATION  
AND REVENUE

LOCAL GOVERNMENT  
RELATIONS DIV.

P N R S S T A I E R E V I E W

MAR 11 1976

APR 13 1976

Project #: 76034 240 Return Date: APR 09 1976

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### REMARKS

*See Attachment*

Agency

*LCRC April 12*

By

*John R. Doolan*  
PH



# Mt. Hood Planning Unit Interagency Plan DEIS

The Mt. Hood DEIS is the best example of federal integration and understanding of the State Land Use System in Oregon that we have reviewed to date. The interagency regional planning approach represented in the plan follows the coordinated comprehensive planning concept forwarded by LCDC; a single management plan for an area which represents the concerns and will be agreed upon by all agencies involved. Once agreed upon the plan will be binding upon the actions of the agencies involved. Through this type of early planning coordination between federal, state, regional and local units of government many unnecessary conflicts can be avoided and better plans will result. The approach used in the Mt. Hood Planning Unit should be used as a prototype for other Forest Service and BLM planning programs.

The statewide framework for planning and the role of CRAG and the counties are well described. Existing federal, state and local plans are recognized and discussed as well as the relationship between the interagency plan and the EIS and county comprehensive planning process. One correction should be noted however, once the interagency plan is agreed upon, the counties will incorporate the entire planning unit plan for all private, state and federal lands into their comprehensive plans, rather than just addressing private lands.

The Mt. Hood Planning Unit Program involved active agency coordination and citizen participation throughout the planning process and the plan describes how this agency and citizen involvement will be carried forward as a continuing effort with plan review and revision on a five year basis. The only additions to this process we would suggest are the involvement of any local special districts in the study area and coordination with county Citizen Involvement Programs. Hood River County has an adopted citizen involvement program and a committee for citizen involvement as directed by the LCDC Citizen Involvement Goal and Clackamas County is completing work on its program and appointments to its committee.

Future coordination efforts should also recognize and use the county compliance schedules and work programs for reaching consistency with the LCDC Goals. Hood River County has an adopted compliance schedule and grant work program and Clackamas County anticipates submission of a compliance schedule and grant request for LCDC approval in late May.

We were pleased to note that the interagency plan includes a comparison of the planning unit goals with the LCDC Goals and also compares the proposed action and alternatives for consistency with the State Land Use Goals. These comparisons of goals and plan alternatives and the discussion of existing plans in the DEIS carry out the intent of the CEQ guidelines relating to land use, specifically guideline 1500.8(2), extremely well. The only improvement which could be made would be to address the specific topics within the goals individually.

Once planning decisions are completed on federal lands, then all the agency plans in the Planning Unit will be included in an Interagency Framework Plan Summary.

Special districts were involved in the planning process, chiefly through the coordination activities of the counties.

The Final EIS specifically refers to County Citizen Involvement Programs as one of the chief vehicles for continuing public participation.

Use of the environmental capacity approach in the planning process is a difficult undertaking which has been carried out extremely well by focusing on measuring the principle growth-related parameters in the planning unit.

In applying the carrying capacity concept, would it be valuable to examine such as labor (i.e. skill level, education, age, etc.) extractive resources, or existing capital or structures in light of constraints or limitations on economic activity?

Two sentences in the DEIS summarize the value of the environmental capacity approach and the reason for LCDC's support for infusing it into the planning process throughout the state: "These factors (environmental capacity elements) are important in assessing the maintenance costs required to improve conditions or to increase capacity without threatening natural or aesthetic values. They are also the basis for testing the performance of significant development projects and for guiding economic growth and public works investment." What should be noted is that associated with implementation of the plan, there must be continuing evaluation of these environmental capacity elements to monitor how well the plan objectives are being met. In the case of the Mt. Hood Planning Unit, this evaluation is a logical continuing responsibility for the interagency planning council.

Again, the Department wishes to congratulate those involved with the Mt. Hood Planning Unit Interagency Plan on the excellence of their work and to encourage others to look at this approach particularly in regard to agency coordination, citizen involvement and the use of environmental capacity analysis.

Discussion of social and economic characteristics of the Planning Unit has been expanded in the Final EIS. Extractive and geothermal resources, available labor and existing development were considered in relation to economic activity in discussion of potential impacts.





# OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

## STATE CLEARINGHOUSE

Intergovernmental Relations Division  
240 Cottage Street S.E., Salem, Oregon 97310  
Ph: 378-3732

PNRS STATE REVIEW

Project #: 76034-240 Return Date: APR 09 1976

### ENVIRONMENTAL IMPACT REVIEW PROCEDURES

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- ( ) The environmental impact is adequately described.
- ( ) We suggest that the following points be considered in the preparation of a Final Environmental Impact Statement regarding this project.

(X) No comment.

REMARKS

RECEIVED

APR 13 1976

The Department of Transportation and the Highway Division

is now in the process of making a review on the EIS and any suggestions or comments will be submitted to the Mt Hood Planning Team.

Agency George Baldwin

By [Signature]



by Axel Adams in This Is the American Land

## SIERRA CLUB

COLUMBIA GROUP, PACIFIC NORTH WEST CHAPTER  
2837 S.W. Water St.  
Portland, Oregon 97201

April 29, 1976

Mt. Hood Interagency Planning Team  
HOOD/INP/UT  
2440 SE 185th  
Portland, Oregon 97237

Dear Sirs:

This letter is in response to the draft EIS for the Mt. Hood Planning Unit. We appreciate the opportunity to comment on the plans and their possible impacts upon the Mt. Hood region. We regard this area as one of the most important scenic and recreation sites in the state of Oregon, and are deeply concerned about its future.

The Columbia Group of the Sierra Club supports Alternative B with some modifications. A prime concern of ours is avoiding the urbanization of the Mt. Hood region. For this reason we support the lower population levels envisioned under alternative B. We think this alternative will provide for more than adequate growth for the planning unit, will enhance property values, without unduly inflating them, and will preserve the unique values of Oregon's great mountain.

We think the private lands in the planning unit will be most valuable to society if they are devoted mostly to resource production, specifically timber on the west side and agriculture on the east side. We note that according to Oregon State University, private timberlands in the North Willamette Valley Timbershed (in which the planning unit is located) are being depleted rapidly. Private timberland depletion is a threat to the economy of both the Mt. Hood planning unit area and the Portland metropolitan area. Timber - depletion on private lands would be increased by both the proposed plan and the Alternative

1. John H. Beuter, K. Norman Johnson, H. Lynn Scheurman, Timber for Oregon's Tomorrow: An Analysis of Reasonably Possible Occurrences, Research Bulletin 19, School of Forestry, Oregon State University (Corvallis, 1976), pp. 27-29.

A, because both would encourage the conversion of high site timber-lands to housing. As long as landholders must pay the higher taxes of lands which are potential building sites, they will be encouraged to speculate on rising values and will not find it possible to invest money in growing trees. Only if these lands are zoned as timber growing land will it be worthwhile to make them yield timber. Alternative B would do just that. If the timber industry is really serious about growing trees rather than engaging in land speculation, then it would support alternative B.

It is clear that low elevation forests in the planning unit, most of which are in private lands, are these best suited to timber culture. Therefore, timber culture should be encouraged on these lands. Plan B would do this far better than the proposal or Plan A.

It appears that the proposed plan attempts to offset the current declining private timber harvest in the North Willamette Timbershed by increasing the harvest on less productive high elevation national forest lands. It is our opinion that heavy timber harvest on these fragile high elevation lands would be injurious to the other multiple uses for which the national forests are managed, especially water, wildlife, and recreation. The solution to declining private timber harvest is to grow more trees where they grow well, not on logging off high elevation forests where growth is much slower and where regeneration may take centuries instead of years.<sup>2</sup>

The proposed plan is the only one which provides for the expansion of Multitorpor-Ski Bowl, Timberline, and Mt. Hood Meadows ski areas. Unfortunately, each ski area is planned for expansion into an area of extreme fragility. Multitorpor would be expanded into the fragile bogs and pine blome atop Wind Mtn., with severe impact upon Wind Lake. Mt. Hood Meadows would put a chairlift into the seeps and springs of Hood River Meadows, while Timberline Lodge area would go high on the Palmer snowfield in the fragile alpine zone of Mt. Hood. We are not opposed to the expansion of ski areas, but believe that the proposed expansions under the preferred plan would incur unacceptable damage to water, wildlife, and recreation other than skiing. We thus prefer Alternative B since it suggests that ski areas might expand in different directions.

In our reading of the DEIS we find that two key facts emerged from public input before the draft EIS. The first was that people think limits should be placed upon development in the Mt. Hood Planning Unit. The second was that people did not want a lot of

2. See Robert O. Cartis, Francis R. Herman, and Donald J. Lemars, "Height Growth and Site Index for Douglas-fir in High-Elevation Forests of the Oregon-Washington Cascades," in Forest Science, Vol. 20, No. 4 (Dec. 1974), pp. 307-315;

The revised County Comprehensive Plans for the Planning Unit established projected population and community development boundaries and densities for private lands in the area. Forest land designations were also made on private, county, and state lands. These decisions were incorporated in the Proposed Plan and Alternatives in the Final EIS. The County Comprehensive Plan revisions were made after the Draft EIS was distributed.

The intended increase of yields on National Forest will be through intensive management on good growing sites.

Expansion of ski permit area boundaries does not, of itself, permit additional facility development; proposed facilities will undergo review through master planning and environmental analysis. Protection of fragile areas such as those mentioned is a major consideration in this review process and is specifically required under the framework policies for the Planning Unit. Expansion of development has been approved at Timberline through a Ski Area Development Plan, but no decisions have been made regarding additional facilities at Mt. Hood Meadows.



government regulation. Alternative B, best fulfills these two goals. It sets limits on development, which means there will be a low population level. With few people, few government regulations will be necessary. For all of the above reasons, we support Alternative B.

The Interagency Planning Team has done a thorough job of planning and presenting the plans to the public. The level of detail in the plans, as conveyed by maps and text, is quite good. Conceiving and describing the plan has been well done on a technical level.

However, the description of impacts of the plans has not been done with the same uniform excellence. In fact, the amount of detailed description of environmental impacts varies widely from one category to another. For instance, the description of the impacts on wildlife is one of the most thorough and searching ever to appear in a Forest Service DEIS. Yet the description of impacts upon different vegetation types is cursory, and the impacts of geothermal development are barely mentioned. There is virtually no mention of impacts of silviculture on high elevation soil fertility, yet this is one of the most serious problems facing the Mt. Hood Forest in the next decade. The DEIS uses identical language (pp. 115, 132, 149) to describe changes in water quality caused by logging under all three alternatives. The impression conveyed is that, despite the great differences in timing and volume of timber harvest under the three alternatives, the impact on water quality would be the same for all three!

Moreover, though the "Timber Management Comparison Summary Sheet" gives the estimated quantity and value of timber produced under each alternative, it says nothing about the costs of timber production under each alternative. Thus the public has no way of knowing present management costs as compared with "high yield" management costs of the future. Failure to include these costs is a failure to make a statement on the irretrievable and irreversible commitment of resources-- the taxpayers' dollar.

In short, we conclude that at critical points the DEIS contains either no information, or an inadequate level of information, on environmental effects which are of a profoundly critical nature. Our judgement is that because of the inadequate level of detail on impacts of geothermal development, logging, ski area expansion, and a failure to examine key areas under the irretrievable commitment of resources, the DEIS is insufficient.

Thank you for the opportunity to comment.

Yours sincerely,

*Walt Minkeski*

Walt Minkeski, Chairman

Discussion of impacts on water quality and vegetation and impacts from timber management and geothermal development have been improved in the Final EIS.

Relative management costs are reflected through management intensity. Yield shown under intensive management will require funds beyond the current level. This is addressed in the Final EIS.



## DEPARTMENT OF FISH AND WILDLIFE

307 STATE OFFICE BLDG. • 1400 S.W. 5th AVE. • PORTLAND, OREGON

ROBERT W. STRAUB  
GOVERNOR

### COMMISSIONERS

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Member

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Member

JACK STEINER  
Member

JOHN W. MCKEAN  
Director

May 5, 1976

Mr. F. Dale Robertson, Supervisor  
Mt. Hood National Forest  
2440 S. E. 195th Avenue  
Portland, Oregon 97233

Dear Dale:

Please find enclosed the Department's comments on the Mt. Hood Planning Unit.

We appreciate the opportunity to comment on this proposal.

Sincerely,

*William E. Pitney*  
WILLIAM E. PITNEY, HEAD  
ENVIRONMENTAL MANAGEMENT SECTION

Enclosure

cc State Clearinghouse

## OREGON DEPARTMENT OF FISH AND WILDLIFE

comments on

Draft Environmental Statement

MT. HOOD PLANNING UNIT

Mt. Hood National Forest

May 5, 1976

The Department of Fish and Wildlife prefers Alternative B over the proposed plan for the following reasons:

1. The annual volume of sedimentation in streams from developed areas is 4,600 tons per year less;
2. Sewage effluent is 550 million liters per year less;
3. Pollutants from proposed sewage areas are 51,903 kilograms per year less;
4. Total volume of storm runoff in urbanized areas is 1,130 liter per year less;
5. The total volume of solid wastes is 2,920 tons per year less;
6. Alternative B also provides more protection for wildlife habitat and reduces the potential for wildlife harassment; and
7. A total of 800 fewer acres will be cleared for development.

Additional comments concern page 31, paragraphs 4 through 7. Streams in the Mt. Hood Planning Unit have been classified under the four-class Forest Service system and the two-class State system. The two systems



have not been well coordinated and some discrepancies may exist.

Review of the classifications will be conducted in the near future by personnel of the two agencies and an updated stream map prepared if necessary.

Paragraph seven, page 31, refers to a list of streams in the Appendix.

However, that section of the appendix was omitted in the draft statement.

Reference to a list of streams and stream mileages has been deleted from this statement. These are available at the Mt. Hood Forest Supervisor's Office, but not felt to be necessary for inclusion in the statement.



FRIENDS OF THE EARTH, INC.

F. Dale Robertson  
Forest Supervisor  
Mt. Hood National Forest  
2440 SE 195th Ave.  
Portland, Oregon 97233

309

2 May 1976

Dear Mr. Robertson:

Friends of the Earth submits the following comments regarding the Mt. Hood Planning Unit Proposed Interagency Plan DEIS.

It is important that the Mt. Hood P.U. be constructed so it will be compatible with other surrounding P.U.'s; regarding management plans, wilderness areas, and boundaries. We feel the DEIS did not address itself to this problem adequately.

We applaud the efforts made to understand the environmental capacity of the P.U., and relating this to the planning process. This is an essential step in planning, but this good work was not implemented as well as it could have been in the proposed plan. This area is in heavy public use and as a result is deteriorating.

We hold the same views as the Oregon Environmental Council stated in their comments on this EIS - that before any further significant increases in the resident population is proposed, careful consideration in integrating future development and preserving the mountain area from mindless expansion, is necessary.

We favor Alternative B, but not as it is presented in the EIS. The size and distribution of the resident and non - resident population as presented in Alt. B is one main reason for our preference. This alternative could be made into a more viable plan by modifying some of its points and still maintain the slower growth, more open space intent of this plan. For example, the amount of wilderness acreage as proposed in Plan B is impressive, but is that large of area necessary. Some of the marginal wilderness areas, be accommodated in the Scenic and General Forest Categories. We agree with the concept of low intensity planning which leaves the area open for future options. Plan A or the proposed plan makes the critical mistake of an irreversible decision, where Plan B is

Additional information regarding planning and activities in adjacent Planning Units has been incorporated into the Final EIS on pages 12-21 and 64-68.

The BLM and Forest Service have no jurisdiction over the population levels permitted on adjacent private lands; this was one of their primary reasons for participating in an interagency effort. Projected population levels and land designations adopted in the recent county plans reflect a recognition of the need to control future development in the area.



Northwest office 4512 University Way NE Seattle, Washington 98105 (206) 633-1661

a reversible decision in future planning, if the reversibility is needed. Thus, in the long run, jobs are not lost if Plan B is implemented, because the option still remains to increase resource and residential development, if it is found necessary to do so.

Finally, we again thank the Planning Team for its efforts in discussing environmental capacity. But we feel the EIS's definition of environmental capacity is a little off. An area cannot accommodate human development while sustaining its character and environmental values. All aspects of ecological systems are inter-related at any point in time, and any influence on the ecosystem will always cause corresponding changes in other subsystems, such as wildlife populations or forest productivity systems. Human influence on the ecosystem will cause these changes. An increase in human use will cause a decrease on some aspect of the ecosystem

Thank you for giving us the opportunity to comment on this DEIS and we hope our comments will be of some value to you in preparing the Final EIS.

Sincerely,

*Mark Matthies*

Mark Matthies  
Research Associate

We recognize that ecological systems are not static and that some type of change would occur even if the level of human activity remained the same. Environmental capacity is a recognition of the major shifts which could occur in the ecological systems and resources man values in the Mt. Hood area if certain activities are not controlled.



FRIENDS OF THE EARTH, INC.

309

2 May 1976

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Forest Supervisor  
Mt. Hood National Forest  
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Portland, Oregon 97233

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## United States Department of the Interior

OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20240

217

MAY 7 1976

In Reply Refer To:  
LLM ER-76/211

### Gentlemen:

We have received the draft environmental impact statement for the Interagency Land Use Plan for the Mt. Hood Planning Unit. The following comments are provided for your consideration when preparing the final document.

### General Comments

This was a Forest Service led planning effort and the draft statement has been prepared by the Forest Service under USFS policy and procedures. As indicated in the draft statement, Bureau of Land Management State and District staff cooperated in the preparation of the plan and in the statement, since there was a small amount of BLM acreage involved (5300 BLM acres out of 138,000 acres total). This is responsive to BLM policy to fully cooperate with planning efforts led by other agencies when BLM lands are involved or impacted.

The draft statement is noteworthy for its analyses of environmental capacity (Summary, p. 15-18; DES p. 82-85), for graphic analyses of the proposed plan and alternatives (for example, Summary, p. 37-41), and for the quantitative tabular analyses of environmental impacts (Summary, p. 37-46). However, although "geologic hazard areas" have been delineated on Map 5, no specific hazard appears to have been identified for specific areas either on the map or in the text. A potential for accelerated mass wasting is evidently a prevalent hazard, but it would be helpful to be more specific about the areal distribution of hazardous conditions (for example, on p. 157, paragraph 3; or in Exhibit M, which discusses several geologic hazards).

The draft environmental statement does not recognize any potential hydroelectric sites, nor does it acknowledge the existing Geological Survey classifications. The only reference to potential reservoir sites is made on page 32, where it is stated that a reservoir site inventory of the area found no suitable sites. We recommend that the statement be expanded to include a brief discussion of the Marmot hydroelectric site and the Wind Creek pumped storage site.

Geologic hazard information was incorporated into the land suitability maps used in determining the management direction for the Proposed Plan and Alternatives. The level of detail involved in mapping hazards was not suitable for the scale used in the other descriptive maps in the Final EIS. Detailed geologic hazard maps are available from the counties and Forest Service and will be used in reviewing specific developments and activities in the Planning Unit.

The Draft and Final EIS both state that there are no sites suitable for major impoundments. The Marmot hydroelectric site and Wind Creek pumped storage sites are not mentioned in the Final EIS because these sites are not listed in the Columbia-North Pacific Comprehensive Framework Study and only Wind Creek is listed in the Willamette Basin Study.



Within the planning unit boundary, the Geological Survey has classified approximately 2,960 acres for power site purposes in Power Site Reserves 118, 537, 660, 663, and 730, effective at various dates between 1910 and 1920. These classifications lie generally along the Sandy and Salmon Rivers in sec. 13, T. 2 S., R. 5 E., secs. 15, 17, 19, 21, 23, 25, and 35, T. 2 S., R. 6 E., secs. 19, 31, and 33, T. 2 S., R. 7 E., and near the East Fork Hood River in sec. 21, T. 1 S., R. 10 E. The classifications were made to protect potential hydroelectric power development by diversion and conduit methods.

The Geological Survey has studied various potential power sites throughout the planning unit area. The project having the largest potential is the Marmot site, which would divert water from an altitude of 1,350 feet on the Sandy River in sec. 33, T. 2 S., R. 7 E., to a powerhouse site located downstream in sec. 18, T. 2 S., R. 6 E. Approximately 625 feet of head would be developed to generate 58 MW of power based on gross head, mean flow, and 100 percent efficiency. The Federal Power Commission lists the Marmot site in its 1966 Planning Status Report for the Lower Columbia River Basin and also in its 1972 report, Hydroelectric Power Resources of the United States. However, we know of no active consideration for development of the Marmot site in the foreseeable future.

The Corps of Engineers investigated a potential pumped storage site within the planning unit area. The Wind Creek site is listed in their 1965 report, Pumped Storage Inventory of the Pacific Northwest, as having a potential of 1,000 MW for peaking purposes. The site is located in T. 3 S., R. 8 E., and would develop 1,400 feet of head between an upper reservoir on Wind Creek and a lower reservoir on Still Creek. Current estimates are that pumped storage will be needed in the Pacific Northwest sometime after 1985. However, further investigations of the Wind Creek site would be necessary to determine its feasibility.

Although "flooding has a tendency to be selective and only part of the drainages will flood during a storm event" (p. 32, paragraph 4), a map showing flood prone areas of the planning unit should be included, especially for those areas where the greatest housing, commercial, and recreational demands may occur.

The draft statement with its accompanying detailed summary is an excellent evaluation of the impacts on ground water from the considerable variety of phases of the Mt. Hood Interagency Plan. The draft statement, with appendices, adequately describes fish and wildlife resources of the project area, and effects of the proposed action and various alternatives on them.

The Corps has indicated an interest in only one site in the Mt. Hood National Forest; however, it is out of the study area.

As in the case of other geologic hazards, flood plain areas were incorporated into the land suitability analysis to guide use according to environmental factors. Major flood-prone areas including those adjacent to developed areas are designated as Environmental Protection in the Proposed Plan and Alternatives.

We are pleased to note the emphasis accorded in the document to protection of wetlands, floodplains, and steep slopes and recognition of the importance of insectivorous cavity dwellers to maintenance of a healthy forest.

We suggest, however, that the final statement include the information that Mount Hood has been identified as a potential natural landmark.

We also note that none of the maps identify transmission corridors. Identification would help in assessing future impacts if new rights-of-way would be required through the planning unit.

#### Specific Comments

Page 19, third paragraph, Land Use Planning: As written the statement implies that Federal plans and actions shall be consistent with the comprehensive plans adopted under State law ORS 197.705 through 197.795. This, of course, is the same posture taken by the LCDC in the Coastal Zone Management Plan to which both the Forest Service and this Department have previously objected. Actions on Federal land should be in harmony with, but not subject to State law. The statement should make this point clear.

Page 23, Historic Sites: The historic sites listed on this page should be evaluated for their eligibility for the "National Register of Historic Places." If qualified, they should be nominated.

Page 24, third paragraph, Geologic Units: We believe that "permeability" units are incompletely or incorrectly reported; perhaps the meaning, if indeed permeability is meant, is yield of water per unit of time (as in gallons per day per square foot), or perhaps the real intention is merely to indicate typical yields of wells in the various aquifers of the project area, rather than magnitude of permeability. At any rate, as written, the numbers have little meaning and this section should be clarified.

Page 36, Wildlife: This section appears too generalized. Admittedly, more detailed information is contained in the appendix, but it would help expedite review of the statement if some of this information was included in text. Perhaps major species associated with vegetational types discussed in the previous section could also be mentioned.

Page 36, Penultimate Paragraph and Page 53, First Paragraph, Wildlife Viewing: There exists conflicting data regarding Oregonians who participate in some form of wildlife viewing. Page 36 states 95 percent, page 53 states 93 percent. Either figure appears high to us, but we do not have the source document to research the data.

Mt. Hood has been proposed for recognition in the National Register of Natural Landmarks by the Forest Service.

The location of transmission corridors is discussed generally in the text.

The introduction and Background sections of the Final EIS describe the relationships between agencies.

This process is currently underway. The Laurel Hill area is under review at this time by the State Historical Preservation Advisory Committee.

The discussion of permeability refers generally to the ability to transmit water through geologic units. This is what is referred to in the statement. More detailed discussion of permeability was not possible without far more extensive field examination.

This section has been revised to include additional information on wildlife from the appendix.

The figures are correct, the first referred to wildlife oriented activities, the second discussed wildlife viewing. Reference: Aney, W. and Cowan, C. 1975. Survey Shows Wildlife Important Recreational Resource. Oregon Wildlife. 30(2):8-9.



Page 79, second paragraph, second sentence, Acres Harvested: The term "harvesting" denotes cutting. We suggest the terms be changed to "timber management" to avoid the possible misunderstanding that these acres are presently under harvest operations.

Page 87, Public Expenditures: This section is a drastically restrictive statement. If this guideline is to be explicitly followed, many needed projects would either go by the board or countless dollars would be spent trying to recoup the Federal investments. For example, BLM's Wildwood Recreation Site would never have been built if user fees had to amortize the initial investment. The section does, however, have a disclaimer (a provision for exception) when a project is consistent with a public goal and need. We suggest the inclusion of a few examples of user-pay projects (timber sale roads, commercial developments or expansions, etc.) vs. public need projects (recreation sites, roadside rest/public information facilities, etc.)

Page 91, Wetlands: Draining should be added to the list of incompatible uses in wetlands.

Page 93, Area 2 - Wilderness: Added emphasis should be given to protection of delicate alpine and subalpine habitats. As most of such habitat is in the Mt. Hood Wilderness, this wilderness section would seem an appropriate place for its inclusion.

Page 97, Timber: It is difficult to perceive how log hauling could be modified to reduce conflicts with recreation use since the peak of both activities occurs during the same summer season.

Page 107, second paragraph, and page 127, third paragraph, Concentrated Recreation and Skiing: The trail name "Wildwood" is in error. The USFS designation for this trail is the "Piazza" trail.

Pages 108-109, 114, 128, 132, 149 and 192, Power Transmission Lines: Under the "Proposed Plan" reference to transmission corridors is made on pages 108-109 and 114. This plan does not allow new right-of-way for future power transmission lines, even next to the existing corridor. It should be pointed out that Bonneville Power Administration could consider a right-of-way adjacent to the existing corridor if the need for a new line should arise. Through BPA's EIS process it could be shown that it would be in the public interest to route a line on new right-of-way parallel and contiguous to the corridor through this area. The statements on transmission lines under the proposed plan would lead the public to believe no new lines could be built through the area.

This correction has been made in the Final EIS.

These restrictions were not mentioned in the Final EIS because it was felt that they should be reviewed for each project individually.

This correction has been added to the Framework Policies in the Final EIS.

If the problem is of sufficient magnitude, conflicts could be reduced by restricting use of certain roads, signing roads to indicate logging activity, prioritizing roads for different users, coordinating log haul activities in certain areas, or suggesting alternative routes to recreationists.

This correction has been made in the Final EIS.

The Final EIS indicates that new transmission corridors are not anticipated during this planning period based on the projected levels of population and development.

Alternative A discusses transmission corridors on pages 128 and 132. This proposal appears to be more realistic in that it allows consideration of additional right-of-way.

Alternative B discusses impacts of power transmission corridors on page 149. No new right-of-way or corridors would be considered in this alternative. Our comments on this plan would be similar to comments on the "Proposed Plan."

Page 192 lists power transmission corridors as one of the concerns or problems expressed by the general public. It should be pointed out that every effort is made to minimize impacts of additional lines, if required, through the area. Under the headings "Adverse Environmental Effects," "Short Term Uses/Long Term Productivity," "Irreversible Resource Commitments" and "Summary of Effects," no mention of effects of possible future power lines is made. This may be an oversight; however, the reader is led to believe no new power lines would ever be considered through the area. The fact that an established corridor already exists would be good justification for BPA to consider a route at least parallel to the existing corridor. These impacts should be discussed and addressed in this statement.

In reference to the Bonneville Power Administration letter to you of August 29, 1974, pertaining to hydrometeorological stations--the first three gages on this listing are presently automated by BPA. The Corps of Engineers will be taking over these gages within the next couple of years and will also be automating them using VHF radio. A copy of this letter is attached for ready reference.

Exhibit A, Glossary: The glossary explanation of Fish Habitat Management Policy cites reference "(see Appendix, Exhibit D)." However, Exhibit D of the Appendix does not discuss Fish Habitat Management Policy. The explanation of the term "snag" mentions a maximum height of 10 feet. This should be a minimum height.

Exhibit D, Cultural Surveys: We would also like to reiterate for emphasis the suggestion by the Oregon State Historic Preservation Officer that project areas should be surveyed for cultural resources by professional historians and archeologists.

Exhibit K, Wildlife: This exhibit provides good checklists for avian, mammal and herpetofaunal wildlife. A fish list should be included if the above checklists are to be used as reference material.

The Fish Habitat Management Policy is available from the Mt. Hood Forest; this reference has been deleted from the glossary and the snag definition has been corrected.

The Final EIS demonstrates the commitment of the Forest Service and BLM to survey project areas for cultural resources.

The text lists fish species present in the Planning Unit and a more inclusive list has been included in the Appendix (Exhibit L).



Exhibit K, page 23, Molluska: The native oyster, *Ostrea lurida*, is a species limited to coastal marine waters, bays and estuaries. Obviously this species is not found in the Mt. Hood Planning Unit. Should this reference be to another, different species of freshwater clam or mussel? *Ostrea lurida* should be removed from this statement.

Exhibit K, page 25, Glossary: The definition for snag in this glossary contains the same error as the definition in the other glossary; "maximum" height should be "minimum" height. The definition for whip, as stated, would include old growth forest giants. The definition should read "... less than 2" DBH."

Exhibit K, page 28, Appendix A, Plant Community Composition: The narrative does not mention candidate rare and endangered plant species in the Mt. Hood Planning Unit. Some candidate species are known to occupy the area and others may be present. The Oregon Rare and Endangered Plant Species Task Force recently held a conference to gather information on Oregon candidate species. The results of this workshop have not yet been published, but information may be obtained from the Chairman, Mrs. Jean Siddell (phone 636-4633) or Dr. Kenton Chambers, Curator of the Herbarium at Oregon State University.

#### Edit Comments

Glossary - There are two glossaries: one follows page 195 and the other is on page 25 of Exhibit K. The latter glossary only includes two terms (endemic and whip) which are not on the other glossary listing. We suggest all pertinent terms be included in one glossary, and that the other one (in Exhibit K) be eliminated.

Glossary - The organization of the statement is confusing with regard to the placement of the Glossary and the Selected Reference sections. The Glossary, particularly, is referred throughout the narrative text of the statement, but the Table of Contents is silent as to where to find it. The statement is organized with dividers between major sections, including separate dividers for the Glossary and for the Selected References sections. These two sections are also labeled as Exhibits A and B, respectively. The major section for Appendix includes all of the other exhibits beginning with Exhibit C. The list of exhibits for the Appendix is located in the statement on page 195 under Consultation.

We suggest that the Exhibit designation for the Glossary and Reference sections be eliminated and those sections be separately listed in the Table of Contents as are the other major sections. The present Exhibits C, D, E, etc. would be redesignated as Exhibits A, B, C, etc. The listing of the exhibits in the Appendix should be inserted as the initial page of the Appendix section.

Correct, this species and the Columbia white-tailed deer have been deleted from the species list.

This correction has been made in the Final EIS in Exhibit L.

These species are discussed in the Vegetation section and listed in Exhibit K of the Final EIS.

The glossaries have been consolidated in the Final EIS.

In the Final EIS, the references and glossary occur at the end of the text and are listed in the table of contents.

Appendices: Any particular exhibit referenced in the text is now extremely difficult to locate in the Appendices section because page numbering, if any, is not consistent. As a minimum each sheet in the Appendices section should be identified as "... L, M, N, O, P, etc. ..." as appropriate for the exhibit.

Thank you for the opportunity to review and comment on this document.

Sincerely yours,

  
Secretary of the Interior

Deputy Assistant

Forest Supervisor  
Mt. Hood National Forest  
2440 S.E. 195th Avenue  
Portland, Oregon 97233

Enclosure

Identification of the exhibits is simplified in the  
Final EIS.

CC: GS, Reston  
FWS, Regional Director, Portland  
BIA, Portland Area Office  
NPS, Pacific Northwest Region  
NPS, Washington, D. C.  
BR, Pacific Northwest Region  
BPA, Portland  
BOR, Washington, D. C.  
BM, Washington, D.C.  
BLM, State Director, Oregon



AJ

August 29, 1974

Forest Supervisor  
Mt. Hood National Forest  
2440 SE. 195th  
Portland, OR 97233

Dear Sir:

In response to your request for comments regarding the Mt. Hood Planning Unit, Bonneville Power Administration has five major transmission lines which enter the Planning Unit at Lolo Pass and leave the Unit near Cherryville. Although we have no firm plans for additional transmission lines along this corridor at this time, it is very likely that additional transmission lines will be added to this corridor and/or some of the lines removed and replaced with higher capacity lines. It is doubtful that any new transmission corridors will be developed within this Planning Unit. We assume that Management plans within this Unit will not inhibit proper maintenance of the existing and future transmission lines.

Also, there are several hydrometeorological stations within the boundaries of this Unit. The Sandy River at Brightwood stream gage and the Brightwood climatic gage have been automated by BPA. These two gages are essentially in the same location. The gages within the planning unit are as follows:

Name	Number	Lat.	Long.	Type of Gage
Sandy River at Brightwood	14-136099	45-22	122-01	Stream
Brightwood	351028	45-22	122-01	Climatic

2

Letter to Forest Supervisor, Mt. Hood National Forest, Subj:  
Mt. Hood Planning Unit

Name	Number	Lat.	Long.	Type of Gage
Government Camp	353402	45-18	121-45	Climatic
Parkdale GSSW	356474	45-24	121-39	Climatic
Phlox Point	2108	45-20	121-43	Snow
Still Creek	2109	45-17	121-45	Snow
Tilly Jane	2107P	45-24	121-40	Snow

We appreciate the opportunity to comment on this statement.

Sincerely,



E. Willard  
Assistant to the Administrator -  
Interagency Relations

EEWillard:sh

cc: F.G. Schaufelberger - E0  
K.E. Williams - ETI  
E.H. Gehrig - ET  
B. Rogers - O  
F.A. Limpert - PRH  
J.G. McLeod - SJ  
Official File - AJ



UNITED STATES DEPARTMENT OF COMMERCE  
The Assistant Secretary for Science and Technology  
Washington, D.C. 20230

May 14, 1976

Mr. F. Dale Robertson  
Forest Supervisor  
Mt. Hood National Forest  
2440 SE 195th  
Portland, Oregon 97233

Dear Mr. Robertson:

The draft environmental impact statement for "Mt. Hood Planning Unit" has been received by the Department of Commerce for review and comment. The statement has been reviewed and the following comments are offered for your consideration.

Page 70, Figure 10: It is not clear whether the "Level" column of presumably biochemical oxygen demand (BOD), and total suspended solids (TSS) refer to an effluent discharge or to the sewage plant design value. If these values refer to an actual discharge, then the "Remarks" for Timberline Rim, Zigzag Village, and Parkdale referring to "no discharge" are contradictory. On the other hand, if the "Levels" refer to design values, the information in Figure 10 would be more clear if those values were called "Design Levels" and placed adjacent to the column of "Flow Design."

Thank you for giving us an opportunity to provide these comments which we hope will be of assistance to you. We would appreciate receiving four (4) copies of the final statement.

Sincerely,

*Sidney R. Galle*  
Sidney R. Galle

Deputy Assistant Secretary  
for Environmental Affairs

"Levels" refers to the BOD and TSS levels permitted in discharge from existing sewage treatment plants in the Planning Unit. This has been clarified on the figure in the Final EIS.

380



## OTHER SUBSTANTIVE COMMENTS

Substantive comments were received from these individuals:

#3 Turnock

#45 Hammond

#66 Funk

#102

#257

#273 Horn

#277 Charles Merten

Exerpts from their comments are addressed on the pages which follow.

## OTHER SUBSTANTIVE COMMENTS

### BLM INVOLVEMENT

- #277 - From examination of Ex. E, p. 3, Appendix, it is obvious that BLM did not agree in writing to implement anything coming out of the MHPU plan that conflicts with its own policies and/or budget limits. Has BLM now agreed? If not, what is the effect of possible BLM noncompliance with the plan on any of the alternatives?

Response: The requirements for operating within agency budgets and policies applies equally to the Forest Service and the Bureau of Land Management. Both agencies agree on the Proposed Plan in this environmental statement.

### BULL RUN

- #277 - A significant portion of the Bull Run Reserve is within the MHPU. The DEIS will have to be substantially revised in accordance with the March 5, 1976 ruling of the U.S. District Court for the District of Oregon relating to the Reserve.

Response: The Proposed Plan and Alternatives in the Final EIS were developed under the assumption that the legislation regulating the Bull Run Reserve would be modified by Congress which would permit the types of use proposed. In the statement, specific reference is made to the current status of the Bull Run Reserve. The Forest Service will continue to follow the Judge's decree in the interim.

### GEOLOGIC HAZARDS AND GEOTHERMAL DEVELOPMENT

- #45 - . . . "no provision has been considered for volcanic hazards related to Mt. Hood . . . (the description of volcanic hazards in the Appendix) does not concern the valleys of the Sandy and Hood Rivers."

Response: The Final EIS discusses potential volcanic hazards at greater length and specifically addresses the threat to developed areas along the river valleys and regional water supply, power transmission and transportation.

- #45 - If the statements in the draft are accepted by the government agencies involved under the provisions of NEPA, then are not these agencies liable for the safety and damage to life and property within the Planning Unit? . . . (If an owner were not notified of the hazard and his property were destroyed could he not) . . . rightfully recover the value of his structure?

Response: This statement describes the known hazards in the area. Recognition of these hazards has been given in the classification and zoning of lands in the Planning Unit by respective agencies.

Agencies do not assume responsibilities for losses to property and life by describing known hazards. These descriptions were included to help make land management decisions which would provide greater safety to the public.



#3 - Why is a geothermal area only on the Proposed Plan map?

Response: The Proposed Plan and Alternative A both leave the option for geothermal development open, Alternative B does not. However, this does not mean that any geothermal projects are "automatically approved;" they will have to be reviewed under the NEPA process.

#66 - The recent closure of Old Maid Flats and subsequent announcements of thermal energy experimentation in the same area seems to indicate that with all this planning, certain agencies have no intention of abiding by the final draft of any statement.

Response: No geothermal activity has been permitted in the Old Maid Flat area. The Forest Service will follow the decisions reached through the environmental analysis process.

#277 - The DEIS discussion of geothermal activities is extremely confusing. They imply to the reader that hot water heating, but not electrical generation will be allowed. However, the Proposed Plan clearly indicates that geothermal "power" sites are contemplated within the MHPU. Apparently, it must be feasible to produce electricity from hot water as well as from steam. If the DEIS discussion is intended to be the basis for a Forest Service decision to lease any area within the unit for geothermal exploration and development, then the existing discussion is legally inadequate and any decision to execute leases without a full EIS would be arbitrary. The DEIS does document the uniqueness and sensitivity of the MHPU.

Response: Discussion of geothermal resources has been revised and expanded in the Final EIS. Geothermal activity may be permitted as outlined in the statement; but before specific exploration or development are approved on federal lands, they must be reviewed through the NEPA process. Most development would probably require a comprehensive environmental statement.

In the Final EIS, geothermal exploration would be allowed under the Proposed Plan and Alternative A in appropriate areas as designated on the plan maps. Old Maid Flats is only one of the areas available for exploration.

The Proposed Plan and Alternative A do allow for consideration of geothermal steam development in some areas. Geothermal hot water can be used for heating or generating electricity, depending on the characteristics of the resource.

#277 - If geothermal power were developed, it would not be "sold" within the MHPU -- it would be commingled with all other power in the N.W. Power Pool. Hence, the MHPU cannot become self sufficient in electrical power and has no prior claim to any power produced within its confines.

Response: It is true that most of the power generated would be contributed to the Northwest Power Pool and the local area would not be self sufficient. The Final EIS has been revised to reflect this. However, if resources are developed, the area would be contributing to regional electrical power and could provide some local demonstration projects in the local area (e.g. using geothermal heating in Timberline Lodge).

- #277 - The DEIS does not consider the energy required to explore, develop and produce a geothermal power plant -- (it may well be that a net loss of energy would result). The Oregon State Department of Energy is capable of doing a systems analysis on that question.

Response: The revised discussion does address these issues. A development would not be permitted if it ultimately would result in a loss of energy. This is one consideration, any major development would be reviewed for during analysis under the NEPA process. However, the analysis could not be made until the quantity and quality of the geothermal resource is known.

#### SOILS

- #277 - No absolute levels of sediment yield are given nor is any correlation attempted between predicted relative levels (of sediment yield) and their affect on water quality.

Response: We know of no means for projecting absolute levels of sediment yield. Sediment yield estimates are relative. They were included in the computer modeling process and were useful in designing the alternatives. These comparisons are a part of the assessments.

- #277 - There is no explanation of where the figures given for tons/year sediment come from. The discussion of expected sediment yields under various alternatives and their interplay with water quality standards is totally deficient.

Response: Sediment yield was determined by a formula involving soil exposure, slope and soil type. The relationship between the figures for the alternatives are valid but limitations in the base data make the actual figures less significant. More detailed sediment figures cannot be provided until specific projects are reviewed and these projects will only be permitted if they follow the planning framework and plan requirements for water quality and soils.

#### WATER AND AIR QUALITY

- #277 - The nature and degree of "bacterial pollution" is not stated; nor is the specific cause of the 14 failures in private (septic) systems or the nature and cost of corrective action. The DEIS assumes automatic compliance of septic tanks to DEQ standards.

Response: The Final EIS refers to bacterial pollution but does not discuss it futher because it is addressed in greater detail



under county planning programs. Clackamas County is currently reviewing sewage treatment alternatives in the Planning Unit which will significantly reduce water pollution problems. Because the community portions of the Proposed Plan and Alternatives are the same, differences in projected populations are no longer a consideration, except in the rates in which this will occur.

- #277 - Estimated costs for water quality management should be made for each alternative.

Response: On private lands, water quality management costs will be similar under all the alternatives, although the rates of growth may differ. Costs will vary on federal lands. Management costs are discussed generally in the statement. Specific costs will not be detailed except on the basis of projects developed, based on the plan adopted.

- #277 - The DEIS analysis of nutrient loading due to logging is gravely deficient for lack of detail. The Fox Creek B-1 Study is not a true indicator of the effect of normal logging because it was done on very gentle slopes and used far less disruptive practices than normal. Nevertheless, the study showed significant increases in nutrient-leaching and turbidity, although such increases were relatively small in overall stream loading where dispersal was considered. The DEIS states that dilution ratios are not applicable and a nondegradation policy will be maintained.

Response: The B-1 Study is the best comparison available for the local area and is consistent with other studies done for westside Cascade areas. The extremely high nutrient increases occurred directly below the units which were cut, but no increase was detected at downstream monitored sites. The study indicates that the problem was local and short term and therefore, nonsignificant. These effects, though not directly applicable to all managed commercial forest areas, are a basis for comparison and do indicate the probable relationship between short and long range effects.

- #277 - Significant confusion exists in the discussion of Alternative B. P. 149 states that a long term effect of new housing "will be continued contamination of groundwater," implying that no such contamination will occur under PP or A. Yet, p. 155 states that B "will have the least effect on groundwater quality."

Response: The Proposed Plan and Alternatives are all essentially the same in terms of impact on groundwater from housing in the Final EIS. All will have some impact on groundwater quality and this is reflected in the statement.

- #277 - Regardless of the alternative chosen, air and water standards will be violated at some time by somebody. The serious omission of the DEIS is its failure to describe existing enforcement mechanisms and their

reliability. The State Forestry Department lacks the ability to test water quality or fully inspect logging operations.

Response: Existing enforcement mechanisms are more thoroughly discussed in the Final EIS.

- #277 - If p. 18, Exhibit J (Appendix) is correct in saying "zero pollution" is the existing standard, how can any turbidity increase be allowed, significant or not? Better analysis of the standards and the sediment yields is needed, particularly in light of the statement in Ex. N (Appendix), that present water quality standards are not now being met in all cases.

Response: The DEQ revised water quality standards adopted in December 1976 allow up to a 10% cumulative increase in turbidity in the area. These standards are described in the statement and sediment yield computation is sufficient for the purposes of the statement.

- #277 - The DEIS does not attempt to state baseline data for air quality.

Response: Very little data is available because DEQ only has monitoring programs in areas with air pollution problems.

#### NOISE

- #277 - No specific information is given about increase in noise levels.

Response: The Final EIS includes more detailed discussion of noise characteristics, regulation and possible impacts.

#### FISH AND WILDLIFE

- #277 - DEIS recommendations that free ranging dogs be controlled by community education and enforcement of existing regulations by county and state police are totally unrealistic.

Response: If necessary, additional controls may have to be developed at the local and state level, primarily because it is the community areas which are largely responsible for free ranging dogs.

- #277 - It is stated that Marmot Dam prevents full realization of the anadromous fish potential in the Sandy Basin. Yet, the effect of the dam on rearing ponds in the lower Salmon River is not described, nor is the present status and future feasibility of attempts to resolve the dam problem. Hence, the feasibility of the rearing ponds is left totally in doubt.

Response: As stated in the Final EIS, the state is working with PGE to resolve the Marmot Dam problems. Under the FPC relicensing procedures, PGE is required to resolve fish passage problems. Minimum flow levels have now been established.



P. 89 states that regardless of the alternative chosen, old growth and snag habitat will be permanently maintained. Yet, neither here nor elsewhere does the DEIS state (a) how much such habitat is needed to maintain existing levels of wildlife dependent thereon; (b) how much such habitat in fact, will be maintained; or (c) the location of such habitat. In light of Mr. Horn's documentation, these omissions are serious.

Response: Much is known about the type of old growth or snag habitat necessary to sustain certain species, but the requirements of many other species are still unknown. Exact figures for old growth are not available but these areas are limited primarily to portions of the Mt. Hood Addition Wilderness Study Area.

## TIMBER

#257 - Why is the potential yield for the Proposed Plan and Alternative B so close when their land allocations for General Forest are so different?

Response: Potential yield and land allocations for General Forest are both very close in the Proposed Plan and Alternative A in the Final EIS because the timber allocation only differs on federal lands.

#273 - The plan says there would be a sizable increase in revenues from timber harvesting. This is a misleading and untrue statement. The plan calls for the same level of harvest as at present. Any increase in revenue, whether small or sizable will depend not on the plan, but on financing from Congress or on a shortage of timber.

The plan says 78,310 acres will be available for full yield timber production except -- the catch is that "except" accounts for about 80% of the acres available for full yield forestry.

Timber production will produce timber but at reduced stumpage levels due to high logging and cleanup costs for the benefit of the drive through tourist and in a good share of the area at reduced levels.

The net result of the plan is not increased but decreased returns to the counties due to the plan.

Response: Alternative A, the present direction in the Draft EIS, would have allowed housing to be developed on a large share of private lands in both Hood River and Clackamas Counties while the Proposed Plan would have designated much of this area for forest management. This was the reason for the increased yield under the Proposed Plan.

#277 - P. 117 states that increased timber harvest will increase nonpoint pollution of the waters, but that no adverse effect on the fishery will result. No details for this conclusion are given anywhere. No estimate of the anticipated sediment load is given, and no discussion

is presented of the needed mitigating measures to protect small streams for the MHPU fishery. The DEIS should detail what mitigating measures, if any, will be taken to protect such habitat.

Response: The MHPU EIS does state that minimal sedimentation will occur and will have some adverse impacts on fish habitat. Mitigating actions to hold sedimentation impacts to a minimum will come in the form of specific management constraints and prescriptions prescribed by the Fish Habitat Management Policy and SMU guidelines. These are available from the Mt. Hood Forest.

- #277 - The DEIS states that timber harvest reduces fire hazard, but such claims have been ruled to be false by the U.S. District Court in Oregon (Bull Run Reserve) and the Forest Service admits that it is only treating about 30% of the slash due to the extensive backlog of untreated slash. The DEIS should detail the amount of existing untreated slash in the MHPU, the ability or inability of the Forest Service to ensure its treatment and treatment of to-be-created slash under each of the alternatives, so that informed comments and decisions may be made in evaluating the potential effect on water quality and forest protection of the harvest proposal in each of the alternatives.

Response: Timber harvest does reduce fire hazard. This has been demonstrated by surveys of fuel levels in the Northwest conducted by the Forest Service and the Pacific Northwest Experiment Station.

The Judge's decree does not prove this to be false. All new units are receiving timely treatment and each year, the federal agencies are actively reducing the accumulated backlog to reduce fire hazards. Under the Proposed Plan and Alternative A, more area would receive intensive forest management, which would include reduction of fuels.

- #277 - The LCDC goal speaks of conserving forest for forest use, not of maximizing wood production. Thus, the DEIS considers an inappropriate factor in comparing the alternatives to this LCDC goal.

Response: Wood production is one of the primary forest uses and therefore, was considered along with recreation, wildlife and other uses. Considering these factors, the Proposed Plan appeared to best address the combination of values represented by the goal.

- #277 - Is the land in question Class I or Class II farmland? If not, the LCDC goal does not apply; and what is the justification for designating existing farmland for some other use? The land in question is in private ownership and has a vested use as farmland preexisting any classification made in the MHPU. There appears to be no reason for the proposed classification under B, especially since it is classified as farmland under PP. And even if it were classified as forest land under B in order to increase timber output, (a) what are the practical chances of the land ever being converted to forest use, and within what timeframe would the conversion occur; and (b) what are the anticipated comparative gross revenues over time from forest versus farm use for the land?



Response: In the Final EIS, all the alternatives provide the same protection to agricultural lands. The counties have protected all the agricultural land in the Planning Unit under the LCDC requirements.

- #277 - Neither the public nor LCDC is too concerned with the ease of agency administration of recreation. What is wanted is a diversity of quality recreational opportunity throughout the state. The DEIS elsewhere recognizes factually, that B is far superior to PP in terms of recreational opportunity and this recognition should carry over to the judgmental analysis.

Response: The Proposed Plan was selected as best meeting the recreation goal because it does offer the widest variety of recreational opportunities. In the statement, Alternative B is pointed out as providing the best primitive recreational opportunities, but other types of recreation are provided by the Proposed Plan.

## VISUAL MANAGEMENT

P. 41 discusses the existing visual management systems of the Forest Service, Hood River and Clackamas Counties, but does not state whether BLM has any such system.

Response: The BLM has visual management policies regarding protection of areas along travel routes and adjacent to campground development. They have agreed to meet the visual objectives used by the Forest Service in the Mt. Hood Planning Unit (e.g. using a partial retention standard adjacent to the Wildwood Recreation Site). All BLM lands are in the General Forest land category.

## ORV

- #3 - Why is an ORV area only on the Proposed Plan map?

Response: In the Final EIS, the recently adopted Mt. Hood Forest Off Road Vehicle (ORV) Plan applies to all alternatives.

## SPECIAL STUDIES

- #277 - Apparently, the following studies are to be done before preparation of the FEIS and will be incorporated therein:

1. A computer model showing the effect of the various alternatives on water quality (Ex. H, p. 18).
2. Capacity estimates for timber harvest re wildlife retention (Ex. H, p. 19).
3. The cost, under each alternative, of the secondary road system, snow removal, water delivery, sewage disposal, fire and police protection and irrigation (Ex H, p. 31).

Response: These three studies were completed during the Draft EIS process and were used in the development of alternatives. The exhibits referred to are summaries of these studies.

## HOUSING

- #277 - In discussing housing projections in general and under the comparison of the alternatives, the DEIS does not make clear what the regional policy of CRAG is in relation to "need." The population projections seem to be nothing more than an assignment of a "fair share" of anticipated regional population growth to the MHPU on a straight ratio basis. If true, this is a simplistic approach and does not consider CRAG's regional planning goals.

Response: CRAG has adopted regional housing objectives but has not yet adopted policies that can be used to evaluate housing "need" in the MHPU specifically. The Board of Directors has adopted population forecasts for use in transportation and water quality planning which can be used to estimate housing need by a "fair share" method. Although possibly "simplistic," this is the only honest approach possible until CRAG policies and needs evaluations which will probably require a year to complete and adopt.

It should be noted that the so-called "fair share" figures used in the DEIS on Ex H, p. 26 were based on CRAG forecasts done in March 1975. Since then, the CRAG Board has adopted revised figures that lower the forecast by 700 units. Thus, the housing need estimates contained in the DEIS probably overstate the "fair share" estimate.

- #277 - The DEIS should also be careful to distinguish providing for housing needs under LCDC goals from creating housing desire by establishment of water and sewer services. P. 58, for instance, indicated that housing lots have consistently been overplatted in relation to demand for the past nine years. The "turnover" rate in housing is also extremely high.

Response: Housing needs were determined through careful review of projected permanent and seasonal residents. They are opportunities which will be monitored to ensure that sufficient services are available. The counties have identified specific density standards and boundaries for the community boundaries and service areas.

- #102 - Where will the service employees live?

Response: The Final EIS discusses housing needs for service employees. On Forest Service lands, expansion of developed facilities (e.g. Timberline) will require that provision be made for housing service employees.



## COMMUNITY SERVICES

- #277 - P. 85 states that the carrying capacity for existing police and fire services were not determined. Elsewhere in the DEIS, it is obvious that specific estimates of the capacity and costs for these and other municipal services were not attempted for any of the alternatives.

Response: Though police and fire services are very important to the communities, they were not considered as key environmental capacity factors in the Planning Unit.

- #277 - P. 117 states that under PP, the East Fork Irrigation District will incur increased monetary costs due to sedimentation, but no estimate of such cost is given.

Response: Though some costs may be incurred, there is no real basis for a specific estimate.

- #257 - Have the costs of secondary and tertiary treatment systems been compared with land treatment costs?

Response: DEQ representatives have indicated that secondary treatment with land storage of sludge is presently the most energy efficient and cost effective sewage treatment solution for the area.

- #277 - P. 122 and the STR report discuss the need for sludge disposal sites under PP and Alternative A, but no site specific information is provided. The siting, construction and operation of any major waste treatment plant in the unit itself will have a significant effect on the environment. No plan calling for such a plant should be adopted without at least, potential sites being located and evaluated -- otherwise, the basic decision to build will be made without adequate information.

Response: Sludge disposal sites are more adequately discussed in the Final EIS. Potential impacts from waste treatment plants are discussed in the statement but specific site locations and costs are included in the Final STR Study (Exhibit S) and are the responsibility of the county.

- #277 - In comparing PP with B in relation to LCDC's transportation goal, the DEIS gives PP more favor than B due to the inducement of mass transit resulting from higher population density (pp 183-189), overlooking the prior statement that B will have the least impact on the transportation system (p 160). The DEIS does not attempt to assess the probabilities that PP population levels will in fact, either induce or require mass transit.

Response: In the Final EIS, all the alternatives were judged to be equal under transportation because needs will be met at whatever level necessary.

## ENERGY

- #277 - The LCDC goal is to conserve energy, not to produce it. The legislative history of that goal clearly rules out the interpretation placed on it by the DEIS.

Response: One of the guidelines of the State Energy Goal states that planning "should consider as a major determinant, the existing and potential capacity of renewable energy sources to yield useful energy output. Renewable energy sources include water, sunshine, wind, geothermal heat and municipal, forest and farm wastes."

- #277 - Ex. H, p. 29 of the Appendix indicates that the average residential use of electrical power in the unit is 1000 kwh/month. PGE generally states such use is 1500 kwh/month. Is the figure based on actual consumption or a weighted average due to seasonal homes? if the latter, how accurate is the estimate?

Response: The energy estimate was weighted recognizing local use; it was provided by the State Department of Environmental Quality.

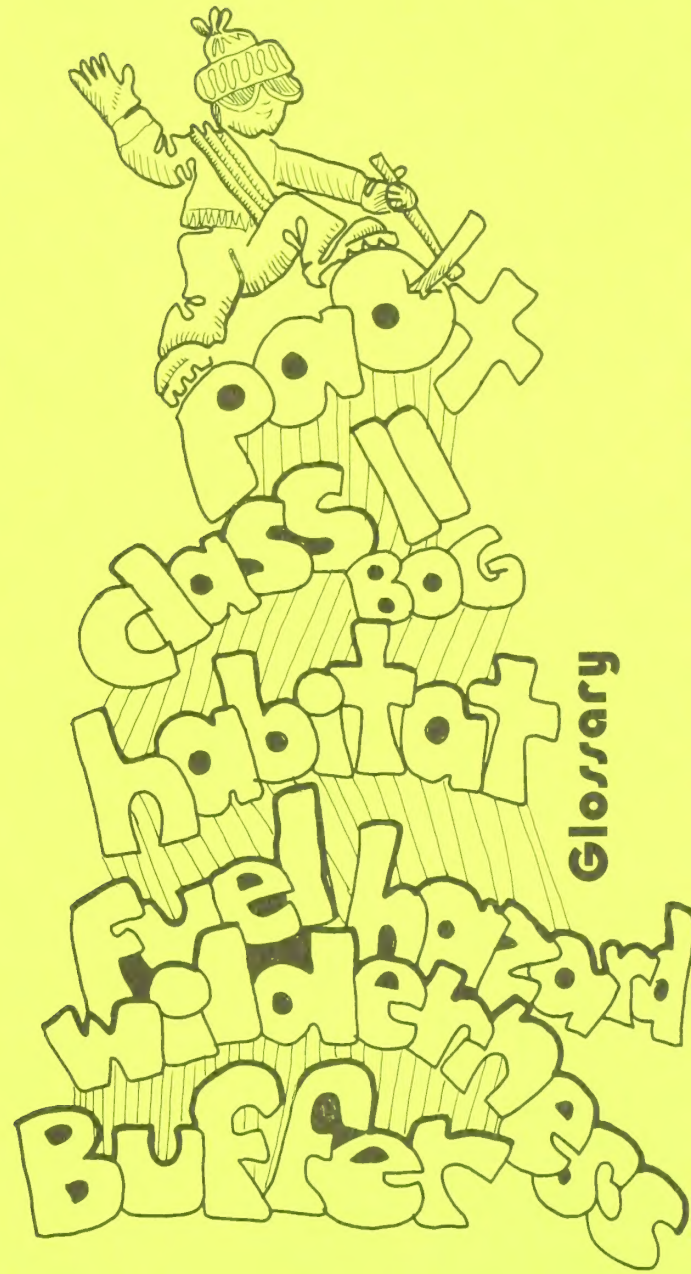
## ECONOMICS

- #277 - In the comparisons at pp. 174-177, it is hard to understand how total wages can be estimated for B, but not total employment. This omission biases the DEIS to PP over B.

Response: Figures for all the alternatives are provided in the Final EIS, Summary section.











## G L O S S A R Y

### Anadromous Fish

Those species of fish which mature in the sea and migrate into streams to spawn.

### Aerial Systems

Logging methods which can lift logs to a landing area and support them free of the ground enroute. Some of the currently operational methods include: helicopters, balloons and certain skyline cable systems. Areas suggested for aerial systems are those not directly accessible by road or where road construction would cause adverse environmental impacts.

### Biochemical Oxygen Demand (BOD)

The amount of oxygen required by micro-organisms while stabilizing decomposable organic matter under aerobic conditions.

### Biomass

The total weight of the living organisms in a given ecosystem or area. This measurement permits comparison between species and allows relative carrying capacities to be considered.

### Biota

The plants and animals of a region.

### Biotic Community

All biological populations within an area.

Climax Community. A point in time when a given ecosystem (habitat) achieves a steady state. It is a community that is self-perpetuating and no other combinations of species is successful in outcompeting or replacing the biota forming the existing community.

Nonclimax Community. An ecosystem which is not stable and is in a constant state of succession (change from one type of ecosystem to another). Over a given period of time, greater varieties of plants and animals will exist in the nonclimax community than the climax habitat.

### Buffer Zone

An area or strip of land existing adjacent to or between land uses. Its purpose is to insulate the effects of one use from another. Management activities are usually modified to ensure this insulation. Buffers may be established along roads, trails, streams and rivers; around wetlands and between farm and residential housing developments.



### Carrying Capacity

The number of animals a given area can support over a long period of time without degradation to the habitat.

### Clearcutting

Removal of the existing timber stand in one operation and establishment of the new stand by natural or artificial means.

### Cluster Housing

A housing pattern in which the individual units are arranged in groups or clusters within a development area. Cluster designs could include common wall or attached units (e.g. townhouses, triplexes) as well as detached, single family dwellings.

### Commercial Forest Land (CFL)

Forest land that is capable of producing crops of industrial wood and is not withdrawn from timber use by statute or administrative regulation; includes areas suitable for management to grow crops of industrial wood and generally capable of producing in excess of 20 cubic feet per acre of annual growth; includes both accessible and prospectively accessible areas and both operable and prospectively operable areas.

### Commercial Thinning

Cutting made in an immature crop or stand in order, primarily, to accelerate the annual growth of the remaining trees but also, by suitable selection, to improve the average form of the trees that remain.

### Computer Model

The term computer model has reference to a linear programming computer model which was one of the analytical tools used by the planners. This particular model was used in testing the comparative ability of different land use activities to meet multiple objectives (i.e. relating to timber yield, housing construction, recreation visitors, sediment, agricultural output, etc.) within the Planning Unit. The model was also used to calculate certain outputs (i.e. housing units, recreation visitor days, etc.) that would result from implementing selected combinations of land use activities and to test the sensitivity of these outputs to different land uses.

Computers were used for other types of analysis, i.e. highway traffic projections (State Department of Transportation), analyses of public input, coefficients for managed timber yield tables, etc.

### dBA (Decibel)

A unit for measuring the volume of sound.

### Dwelling Unit

A living space designed for single family occupancy.

### Ecosystem

An ecosystem is generally thought of as a definable area (e.g. shrub community or ecosystem, grassland community or ecosystem) which has inter and intra specific interactions between cycling biotic (living and nonliving or organic features) and abiotic (nonorganic) components which are needed to continue survival (active living, growing and reproduction) of a population of organisms over an extended period of time (e.g. for the life of any given seral stage) without renewal from the outside.

### Ecotone

An area (edge or transition zone) where two or more different plant communities join together. The tendency for increased animal variety and density at these plant community junctions is often referred to as edge effect.

### Fish Habitat Management Policy

Policy for providing water quality and fish habitat in Pacific Northwest Region National Forest waters.

### Fire Preattack Plan

A predeveloped plan that includes a system for collecting, evaluating and recording fire intelligence data. In the Preattack Plan, both existing and proposed fire control facilities, forest fuels and topography are described and documented. This plan supports the management objectives for any area.

### Fuelbreak

This term refers to a change in on-the-ground fuel types in the forest which prevent or retard the spread of fire. This may be a meadow, lake, road, trail or any other natural or man-made change from one fuel type (i.e. timber) to another (i.e. brush). It is a strategically located strip or block of land, normally 100-500 feet wide, where aesthetic values have been maintained or enhanced by fuel modification so that fires burning into it can be more readily extinguished.

### Fuel Hazard

A supply of fuel that forms a special threat of ignition or of suppression difficulty.

### Group Selection System

A tree management system where trees are periodically removed in small groups from an area. Regeneration is mainly natural.



## Habitat

See Ecosystem.

## Helispot

This is an area that is provided for helicopter landing but has no on-the-ground access by roads. It requires a cleared area 50 feet in diameter and clear approaches at a 45° vertical angle.

## Home Range

The normal distance a given species can travel or move in a given time; in this case, a 24 hour period. It also refers to an area the animal is familiar with.

## Intensive Timber Management (Intensive Forestry)

The practice of timber management through application of the best silvicultural techniques to obtain a high level of volume and quality of timber products. Intensive management includes full utilization of the resources consistent with the resource constraints.

## Mass Wasting

A general term for a variety of processes by which large masses of earth material are moved by gravity, either slowly or quickly, downslope.

## MBF or MMBF

A board foot is a common lumber measurement equivalent to a piece of lumber one foot long, one foot wide and one inch thick. Standing trees and logs are normally measured in board feet and totals are expressed in thousands of board feet (MBF) or millions of board feet (MMBF).

## Niche

While the habitat of an animal indicates where it lives, the niche represents the position or status of that animal in the habitat.

## Old Growth

Very old trees, usually well past physiological maturity. Definitions vary with localities but generally, it includes trees over 200 years of age.

## PAOT

Persons at one time.

## Peripheral

At the edge of its natural range of habitat and is living in a stress situation.

### Permeability

The capability of soil or rock to transmit water.

### Planned Unit Development PUD

A land development technique in which the project area is comprehensively planned as an entity or unit and the primary land uses are residential and open space. It permits flexibility in building siting, mixtures of housing types, usable open space and preservation of natural features. A much freer and more sensitive placement of structures on the land than conventional lot by lot subdivision is a usual result. Frequently, this provides savings in development costs. Project elements -- housing, roads, open spaces, recreational and other nonresidential uses -- are essentially interrelated with one another. Densities are calculated within the zoning on a project basis (i.e. the net amount of acreage suitable for buildings and/or on-site sewage disposal), allowing the "clustering" or grouping of features. The required open space can be owned by the public or in common among the residents of the development. Both Clackamas and Hood River Counties have ordinances for administering the PUD approach to development.

### Point and Nonpoint Pollution

Pollution which originates at a single identifiable source, such as a sewage treatment plant, is known as "point." Erosion and sedimentation are examples of nonpoint pollution.

### Programmed Allowable Harvest

That part of the potential yield that is scheduled for cutting in a specific year on BLM and National Forest lands. The level of cut is based on current demand, funding, silvicultural practices and multiple use considerations.

### Potential Yield

Potential yield is calculated for a ten year period, and is the maximum harvest that could be planned to achieve the optimum perpetual sustained yield harvesting level attainable with intensive forestry on regulated areas, considering the productivity of the land, conventional logging technology, standard cultural treatments and interrelationship with other resource uses and the environment.

### Riparian

Refers to the banks of lakes, ponds, streams and rivers; for example, the plants and animals which live along or frequent river banks.

### River Mile

Distance from the mouth of a stream expressed in miles.

### Regeneration

The renewal of a tree crop, whether by natural or artificial means.



## Road Standards (National Forest)

Single Lane. A road designed and built for all weather, multipurpose use with a design speed of less than 25 miles per hour. It will fit the natural terrain as much as possible; clearing and road widths to be minimal.

Double Lane. A road designed and built for all weather, multipurpose use with a design speed of less than 30 miles per hour. It will fit the natural terrain as much as possible; clearing and road widths to be minimal.

## Roadless (and Undeveloped) Areas

A portion of a National Forest larger than 5000 acres or smaller than this, but contiguous to designated wilderness or primitive areas which contain no roads and have been inventoried by the Forest Service for possible inclusion in the wilderness areas system. By management directive, these areas were not to be developed until a determination was made on an individual basis whether the area should be considered as a possible wilderness area.

## Rotation Age

Period of years required to establish and grow timber crops to a specific condition of maturity.

## Sere (Seral Stage)

The series of communities which replace one another in ecological succession in a given area. Each community in the sequence is called a seral stage or seral community (final or mature communities are called climax communities).

## Shaded Fuelbreak

A man-made fuelbreak in which hazardous debris or brush has been removed from the area, while leaving a residual stand of trees to provide shade. The normal method of hazard reduction is by burning at a favorable time.

## Silviculture

Cultivation of forest crops based on a scientific understanding of the growth characteristics of trees in their environment.

## Site Index

A numerical evaluation of land for plant productivity; on forest lands, it refers to the rate of growth in height on one or more tree species.

## Sludge

A liquid containing contaminants removed from waste water by physical, biological and chemical treatments.

## Snags

Existing Snags. Any standing dead tree or portion of the stem of a standing dead tree having a minimum diameter at breast height of ten inches and a minimum height of ten feet.

Potential Snag. Any living conifer tree with a minimum diameter of ten inches. These may be broken-topped or spike-topped green trees, partially cull, totally cull or any sound tree. Killing these trees at prescribed times insures a future supply of snags for replacement of existing snags as they become inadequate.

## Species Diversity

Generally refers to having a quantity of different species or kinds of plants, animals or other life forms within a given area.

## Stream Classifications (National Forest)

Class I Stream. Perennial or intermittent streams or segments thereof that have one or more of the following characteristics:

1. Direct source of water for domestic use or fish hatcheries.
2. Used by large numbers of fish for spawning, rearing or migration.
3. Flow enough water to have a major influence on water quality of a Class I stream.

Class II Stream. Perennial or intermittent streams or segments thereof that have one or both of the following characteristics:

1. Used by moderate though significant numbers of fish for spawning, rearing or migration.
2. Flow enough water to have only a moderate and not clearly identifiable influence on downstream quality of a Class I stream, or have a major influence on a Class II stream.

Class III Stream. All other perennial streams or segments thereof not meeting higher class criteria.

Class IV Stream. All other intermittent streams or segments thereof not meeting higher class criteria.

## Streamside Management Unit (SMU)

The stream and an adjacent area of varying width where practices that might affect water quality, fish and other aquatic resources are modified as necessary to meet SMU goals for each class of stream.



## Surveillance Burning

A fire management technique through which the decision to suppress a given wild-fire is continually re-evaluated and if necessary, modified, based on its potential threat of damage to high value or unique land or commercial resources. This determination is reached by assessing the current and anticipated fire behavior as influenced by weather, fuel and topographic conditions.

## Survival

A term referring to an animal population which is actively living, growing and reproducing in a given area.

## Timber Management Classifications

The Planning Unit is classified under each of the Land Use Alternatives as it is related to management of the timber resource. Following are definitions for each of the classifications. This information is included in the Forest Service Timber Management Plan Inventory Handbook, copies of which are available for review at all Forest Service offices:

Nonforest. Land which has never supported forests and lands formerly forested where use for timber utilization is precluded by development for other uses.

Forest. Land at least ten percent occupied or stocked by forest trees of any size or formerly having had such tree cover and not currently developed for nonforest use.

Unproductive. Forest land incapable of producing 20 cubic feet of wood per acre annually and land permanently inoperable or nonstockable.

Productive. Forest land capable of management for continuous crops of timber in excess of 20 cubic feet per acre per year.

Productive Reserved. Productive forest land withdrawn from timber utilization by statute or administrative regulation.

Deferred. Commercial forest land withheld from timber management because of possible pending legislative action that would affect the status as timber producing land. These areas are not included in the land base for calculating sustained timber yield.

Commercial Forest. Forest land capable of management for continuous crops of timber which has not been reserved or deferred.

Standard. The portion of the commercial forest land on which timber crops can be grown and harvested with adequate protection of all resources under the usual provisions of the Forest Service Timber Sale Contract.

Special. That portion of the commercial forest land that needs specially designed treatment of the timber resource to achieve landscape

Marginal. Commercial forest land not qualifying as standard or special because of excessive development costs, low product values or resource protection constraints. Harvest yield may be planned when the constraint(s) are removed.

Unregulated. This is commercial forest land that will not be scheduled for timber production under sustained yield principles.

### Timber Management Visual (Scenic) Quality Objectives

Goals for management of the visual resource which describe various degrees of natural landscape character alteration. These objectives are determined by combining Sensitivity Level (visitor interest) and the natural landscape variety class.

Preservation. Allows ecological changes only. Applies to wilderness areas and other special classified areas.

Retention. Provides for management activities which are not visually evident. Activities may repeat form, line, color and texture which are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, pattern, etc. should not be evident.

Partial Retention. Management activities remain visually subordinate to the characteristic landscape. Activities may repeat form, line, color or texture common to the characteristic landscape or introduce those factors not found, but changes in their qualities of size, amount, intensity, direction, pattern should remain visually subordinate to the characteristic landscape.

Modification. Management activities may dominate the original characteristic landscape but must borrow from natural factors of form, line, color and texture so that the visual characteristics are those of similar natural landscapes. A natural appearing composition or design.

Maximum Modification. Management activities may subordinate the original characteristic landscape. When viewed as foreground or middleground, the activity may not appear to borrow from natural factors. When viewed as background, it would appear as part of the overall natural composition.

Foreground. Generally, a distance from the observer out to about one-quarter mile. The foreground is the area in which details of texture, pattern and vegetation can be observed. In most cases on the westside of Mt. Hood Forest, the typical vegetation and landform limit the foreground to about 300 feet from the observer.

Middleground. The intermediate landscape distance, generally from one-quarter mile out to three to five miles. Here, the various parts of the landscape can be seen joining together. Details of vegetation disappear and merge into a texture.

Background. The distant landscape, generally from three to five miles out to infinity. The landscape becomes simplified into gross patterns of shapes, drainages, land masses and greyed colors.



## Water Turbidity

The turbidity of a water sample is a measure of the ability of suspended and colloidal materials to diminish the penetration of light through the sample.

## Wetland (Bog, Marsh, Swamp)

Bog. A hydrosere usually developed in glaciated areas where precipitation is high, evaporation fairly low with poor drainage, usually due to a glacial basin and porous lands. Usually deficient aeration, poor bacterial and fungal flora with a low pH factor (acidic). Peat deposits often floating with sedge or Sphagnum mats and shrubs. Hummocks usually present. Conifer trees usually surrounding or dispersed through the hydrosere.

Quaking-Bog. Similar to above, except soils are so loosely consolidated and contain so much water that pressure at one point produces shaking and trembling for a considerable distance around the point of impact.

Marsh. A treeless hydrosere, often developed in shallow ponds, depressions or river margins. Grasses, rushes and sedges compose the dominant vegetation, monocotyledons predominant. May be seasonally ponded.

Swamp. A hydrosere saturated but usually not covered with water. May be located in sluggish streams or floodplains of rivers. Dominated with trees (usually, but not necessarily deciduous) plus moss and shrubs. Drainage better than bogs with soil more compacted and less acidic. May succeed a marsh ecosystem.

Modified Wet Areas. Hydrosere areas which have been modified by man and do not fit one of the above ecological classifications.

"Local county planning and zoning policies (upheld by state and regional land use direction) declare marsh and other wetland areas off-limits for development and density transfer calculations. The objectives are to preserve wetlands as wild areas and maintain their functional values as regulators of water quality and quantity and as important resources for overall environmental health and species diversity. This avoids future liabilities and corrective expenditures for the public, minimizes nuisance-like impacts on surrounding lands and furthers consumer protection and public safety."

## Wilderness

The Wilderness Act of 1964 defines Wilderness as follows:

"A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act, an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive

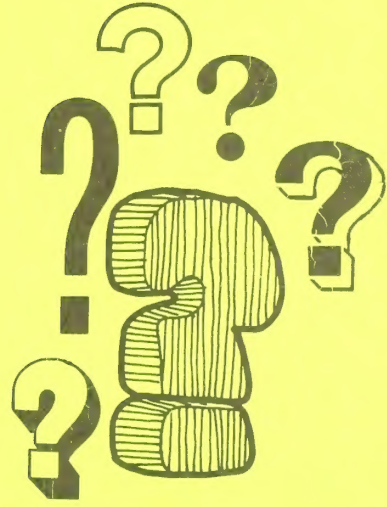
and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological or other features of scientific, educational, scenic or historical value."

#### Wilderness Study Area

An area of undeveloped National Forest land selected by the Forest Service as having a high priority for further study for possible addition to the National Wilderness Preservation System. These areas are not the same as primitive areas. New Study Areas will be managed to protect their wilderness characteristics until detailed studies can be completed and a recommendation is accepted as to their classification for wilderness or other purposes. No actions will be undertaken in New Study Areas that will change their wilderness characteristics, including harvesting timber, building roads, vegetative type changes or construction other permanent improvements that would not be allowed in established wilderness. For further information, see Forest Service Manual 8261.1.







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## Appendix





## LIST OF EXHIBITS

- A - BLM Acknowledgement of Forest Service as the Lead Agency
- B - Interagency Memorandum of Understanding
- C - List of Contributing Individuals and Agencies
- D - Public Input Analysis
- E - List of Special Reports
- F - Ad Hoc Technical Reviews
- G - Environmental Capacity Approach and Report Abstracts
- H - Mass Wasting Effects and Potential Geologic Hazards
- I - Water Quality and Quantity Assessment
- J - Soils Environmental Assessment
- K - Possible Rare, Endangered or Threatened Plants  
and Plant Community Survey
- L - Wildlife Assessment and Species Lists  
(Including Status of Specially Classified Wildlife)
- M - Recreation Assessment (Including Winter Sports  
Environmental Capacity)
- N - Cultural Resource Inventory
- O - State Highway Assessment
- P - Land Ownership Adjustment
- Q - Forest Service Guidelines for Visual Management
- R - Direct Capital and Operating Costs
- S - Sewage Alternatives (Clackamas County)





## United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

OREGON STATE OFFICE  
P.O. Box 2965 1729 N.E. Oregon Street  
Portland, Oregon 97208

1792 (911)

DEC 1 1975

NH NH

Mr. John B. White, Planning Coordinator  
Mt. Hood National Forest  
2440 S.E. 195th Avenue  
Portland, Oregon 97233

Dear Mr. White:

Since the majority of the land and the principal actions being considered in the Mt. Hood Planning Unit are on National Forest lands, the Bureau of Land Management concurs that the Forest Service be the lead agency for the Mt. Hood Inter-Agency Land Use Plan as it applies to Federally administered lands. As such the Supervisor of the Mt. Hood National Forest will be the designated responsible official for the Environmental Impact Statement.

Sincerely yours,

*E. J. Peterson*  
State Director

MEMORANDUM OF UNDERSTANDING  
BETWEEN THE AGENCIES  
PARTICIPATING IN THE STUDY OF THE MT. HOOD PLANNING UNIT

As population grows and leisure time increases, the demand for recreation facilities in Oregon is increasing rapidly. In the areas accessible from Portland this increase in demand is even more pronounced as urban dwellers in increasing numbers seek to "get away from it all".

Much of the pressure for expansion of facilities, both for temporary users and for permanent homesites is being exerted on the Mt. Hood area, especially along Highways 26 and 35. In addition to recreation facilities, this area is a significant source of timber that provides an important part of the economic base for the surrounding communities. The Mt. Hood area is also a watershed for many individual homes and communities and has numerous historical sites that are relatively accessible and of interest to many people.

Mt. Hood is not just of local significance; National, regional and State needs also exist that must be taken into consideration in the management of the area. For this reason, as well as the complexity of increasing demands for resources, it is important that the area has a uniform comprehensive plan for growth land use; the results of unplanned growth in some parts of the Mt. Hood area have already created problems.

With the overlap of jurisdictions by Federal, State and county and community agencies, it is necessary to have a coordinated effort by all of these agencies in planning rather than to have individual agencies produce plans which might conflict. For this reason the following agencies have formed an interagency planning team to continue and elaborate upon existing planning programs in the Mt. Hood Planning Unit, and develop an interagency comprehensive land use plan.

Bureau of Land Management  
Clackamas County  
Columbia Region Association of Governments  
Hood River County  
Mid-Columbia Economic Development District  
Mt. Hood National Forest  
State of Oregon Forestry Department

An Executive Committee has been formed to provide direction to the planning team and to approve and recommend for information the resulting interagency plan. This committee consists of the following agencies:

Bureau of Land Management  
Clackamas County  
Hood River County  
Mt. Hood National Forest

Description of Area

The Mt. Hood Planning Unit consists of approximately 149,000 acres, including the U.S. Highway 26 corridor east of Cherryville, south to the Hunchback Mountain-Devil's Peak-Sherar Burn Ridge, north to Lolo Pass and the Mt. Hood



Wilderness Area and east to include the State Highway 35 corridor and the East Fork of the Hood River Valley to the National Forest boundary, about six miles south of Parkdale. The Planning Unit boundaries are subject to modification pending approval of the Executive Committee.

#### Goals of the Interagency Study

The purpose of this planning effort will be to provide a comprehensive plan that is acceptable to all agencies involved and can be implemented uniformly throughout the planning unit.

This plan will recognize that Mt. Hood, both east and west sides, is in itself an entity within which all aspects of man's activities must harmonize with each other. In order to achieve this purpose, the following initial goals have been agreed upon.

To identify certain economic and environmental values that are basic to Mt. Hood and the surrounding communities that must be retained, and to keep these values from being compromised.

To insure that the public has an active and meaningful role in the planning process.

To recognize the subtle and intricate relationships that exist in the ecosystems in the Mt. Hood area, and to sustain the high degree of environmental quality that is a major resource of the planning unit.

To provide a more accurate picture of local, regional and national public needs and expectations to all agencies making land use decisions in the area.

To provide an opportunity for a variety of forms of use, but insure that only those forms compatible with each other will occur within the same area.

In continuation of previous planning programs, to carry out environmental capacity studies which will determine physical and social carrying capacities under alternative forms and intensities of use. A determination will be made on environmental capacity for all lands within the planning unit.

To identify lands that might be managed better under different ownership and to decide upon a means of land consolidation that is equitable and acceptable to all parties involved.

To compile an intensive resource inventory that can be used by all agencies in making land use decisions.

## Agency Responsibilities

### BUREAU OF LAND MANAGEMENT

To serve on the Executive Committee.

To participate on the interagency planning team in the following manner:

To participate in the adoption and implementation of a plan or amendments to existing plans to the extent plans are consistent with BLM goals and funding levels and to make interim management decisions on BLM lands.

To apprise the planning team of significant development proposals that may affect the outcome of the plan and to serve Ad Hoc review committees as outlined in the interim management policy in this agreement.

To act in an advisory capacity on timber management, recreation and other uses that occur on BLM lands, and to make available existing resource information needed to complete land suitability analyses and to test alternatives.

### CLACKAMAS COUNTY

To serve on the Executive Committee.

To participate on the interagency planning team both as a private land owner and as an administrator of private land under county jurisdiction, in the following manner:

To participate in the adoption and implementation of a plan or amendments to existing plans when the study is complete on lands under County jurisdiction, and also to make interim decision on these lands.

To apprise the planning team of significant development proposals that may affect the outcome of the plan and to serve on Ad Hoc review committee as outlined in the interim management policy in this agreement.

To assist in funding of a graduate student in Social Science from Portland State University who will solicit, compile and analyze public involvement and response, and to assist in financing publications.

Joint funding for the publications and assistance from Portland State for Clackamas County will be \$1500, for a two year period. This amount will not be exceeded without the expressed consent of the County Commissioners.



To provide staff assistance in planning and collection and analysis of data on current and proposed land use and soil suitability.

#### COLUMBIA REGION ASSOCIATION OF GOVERNMENTS

To participate on the interagency planning team as a representative of the local governments that are members of CRAG in the following manner:

To act in an advisory capacity on demographic, economic and soil trends that are occurring both within the planning unit and in the total region that affects and is affected by the events in the Mt. Hood area.

To apprise the planning team of significant development proposals that may affect the outcome of the plan and serve on Ad Hoc review committees as outlined in the interim management policy in this agreement.

To assist in identifying and clarifying problems that arise out of the fragmented pattern of private and public ownership in parts of the planning unit.

To have an advisory role in the development of a public involvement process.

To apprise the planning team of significant Regional planning proposals that may affect or provide input to the Mt. Hood planning effort.

#### HOOD RIVER COUNTY

To serve on the Executive Committee.

To participate on the interagency planning team both as a private land owner and as an administrator of private land under county jurisdiction, in the following manner:

To participate in the adoption and implementation of a plan or amendments to existing plans when the study is complete on lands under County jurisdiction, and also to make interim decisions on these lands.

To apprise the planning team of significant development proposals that may affect the outcome of the plan and to serve on Ad Hoc review committee as outlined in the interim management policy in this agreement.

To assist in funding of a graduate student in Social Science from Portland State University who will solicit, compile and analyze public involvement and response, and to assist in financing publications.

Joint funding for the publications and assistance from Portland State for Hood River County will be \$1500, for a two year period. This amount will not be exceeded without the expressed consent of the County Commissioners.

To provide staff assistance in planning and collection and analysis of data on current and proposed land use.

#### MID-COLUMBIA ECONOMIC DEVELOPMENT DISTRICT

To participate on the interagency planning team as a representative of the local governments that are members of MCEDD in the following manner:

To act in an advisory capacity on demographic, economic and social trends that are occurring both within the planning unit and in the total region that affects and is affected by the events in the Mt. Hood area.

To apprise the planning team of significant development proposals that may affect the outcome of the plan and serve on Ad Hoc review committees as outlined in the interim management policy in this agreement.

To provide staff to produce an economic analysis of the area that can be used to develop and test land use alternatives.

To assist in identifying and clarifying problems that arise out of the fragmented pattern of private and public ownership in parts of the planning unit.

To apprise the planning team of significant regional planning proposals that may effect or provide input to the Mt. Hood planning effort.

#### MT. HOOD NATIONAL FOREST

To serve on the Executive Committee.

To participate on the interagency planning team as a public land owner in the following manner:

To assist in coordination of the planning activities.

To apprise the planning team of significant development proposals that may affect the outcome of the plan and serve on Ad Hoc review committees as outlined in the interim management policy in this agreement.



To participate in the adoption and implementation of a plan or amendments to existing plans on National Forest lands when the study is complete, and also to make interim management decisions on such lands.

To assist in funding of a graduate student in Social Science from Portland State University who will solicit, compile and evaluate public involvement and response, and to assist in financing publications. The Mt. Hood Forest share of funding for the joint financing of the publications and assistance from Portland State University will be \$3000.

To be responsible for inventory and analysis of soils, geology, vegetation, visual characteristics and wildlife in the planning unit.

#### STATE OF OREGON DEPARTMENT OF FORESTRY

To participate on the interagency planning team both as a public land owner, and as a manager and advisor for county and private forest lands in the following manner:

To review for adoption and implementation of the plan or amendments to existing plans on State lands when the study is complete and also to make interim management decisions on such lands.

To apprise the planning team of significant development proposals that may affect the outcome of the plan and serve on Ad Hoc review committees as outlined in the interim management policy in this agreement.

To provide resource information on non-Federal lands to the planning team that will be used in analyzing land suitabilities.

To act in an advisory capacity on timber management and other uses that occur on lands under State jurisdiction.

#### Interim Management Policy

The following proposal for interim management was agreed upon by the agencies having responsibility for administration of lands within the Mt. Hood Planning Unit:

"All significant development proposals within the Mt. Hood Planning Unit will be referred to the interagency planning team for review and recommendation by the member agency receiving the original proposal. The agency having approval authority for permitting development shall decide whether the proposal is significant."

The interagency planning team will complete its review and recommendation to the agency requesting the review within thirty days.

The interagency planning team will select an Ad Hoc committee to review each proposal.

Nothing herein shall be construed as binding the funding agencies for the payment of money beyond the current fiscal year unless a financial plan for subsequent years has been approved by each agency.

WE, THE UNDERSIGNED, AGREE TO PARTICIPATE IN THE DEVELOPMENT AND ADOPTION OF THE MT. HOOD INTERAGENCY COMPREHENSIVE PLAN AS DESCRIBED IN THIS MEMORANDUM OF UNDERSTANDING.

Archie D. Craft State Director, Oregon State Office  
Bureau of Land Management

Thomas D. Telford Thomas D. Telford, Chairman, Board of County  
Commissioners, Clackamas County

William H. Young William Young, Chairman Executive Board of  
Columbia Region Association of Governments

Jerry Routson Jerry Routson, Chairman, Board of County  
Commissioners, Hood River County

William H. Furrow William H. Furrow, Chairman, Board of Directors,  
Mid-Columbia Economic Development District

Wright T. Mallery Wright T. Mallery, Forest Supervisor,  
Mt. Hood National Forest

J. Edward Shroeder J. Edward Shroeder, State Forester,  
Forestry Department, State of Oregon



Bureau of Land Management  
Clackamas County  
Columbia Region Association  
of Governments  
Hood River County  
Mid-Columbia Economic  
Development District  
Oregon State Forestry Department  
U.S. Forest Service

## MT. HOOD PLANNING UNIT

P.O. Box 16040  
Portland, Oregon 972

8200

November 20, 1973

### AMENDMENT #1

#### MEMO OF UNDERSTANDING BETWEEN THE AGENCIES PARTICIPATING IN THE STUDY OF THE MT. HOOD PLANNING UNIT

In accordance with Executive Committee instructions of October 15, 1973,  
please affect the indicated action.

Remove Pages 3/4 and 5/6.

Insert Page I directly behind Contents Page.

Insert Pages 3/4, Chg. #1; and 5/6, Chg. #1.

#### Changes affected:

This amendment changes the language of the implementation and  
adoption procedure of the plan. The effect is to strengthen  
the Memo of Understanding and make it more consistent between  
the four principal agencies.

Please complete and return the attached Page I-A.

  
JOHN WHITE  
Team Coordinator  
HOOD/INPUT

Enclosures

## LIST OF INDIVIDUALS AND AGENCIES CONTRIBUTING TO THIS STATEMENT

Clackamas County

Planning Department  
 Ken Dauble  
 Dave Patterson  
 Department of Public Works  
 Carl Knee  
 Dave Abraham  
 Jerry Marshall

Hood River County

Planning Department  
 Dave Porter  
 Department of Public Works  
 Ronald Merry

State of Oregon

Fish and Wildlife Commission  
 Ken Thompson  
 Gene Herb  
 Ronald Hasselman  
 Department of Environmental Quality  
 Bob Gilbert  
 Steve Carter  
 Pat Hanarhan  
 Department of Water Resources  
 Keith Palmer  
 Albert Wright  
 Fred Lissner  
 Department of Transportation  
 Rob Cameron  
 Tom Schwab  
 Craig Markam  
 State Forestry Department  
 Chan Bunke  
 Ken Humbert

Oregon State University

Professor Chuck Dane

CRAG

Herb Beals

BLM

Hank Blessing

USFS

Regional Office  
 Fred Hall  
 Supervisor's Office  
 John White  
 Mary Moore

## USFS-SO (cont)

Nance Meador  
 Gene Tomlin  
 Richard Shaffer  
 Kirk Horn  
 Chuck Whitt  
 Richard Ross  
 Ron Humphrey  
 Jim Hutchins  
 Greg Halverson  
 Pete Patterson  
 Lyal Zaugg  
 Barbara Kennedy  
 Donna Hepp  
 Myron Blank  
 Zigzag Ranger District  
 Waren Olney  
 Hood River Ranger District  
 Miles Weaver



## EXHIBIT D

### PUBLIC INPUT ANALYSIS

1. Public Input Analysis of the Draft Environmental Statement.
2. Summary of Response to Mt. Hood Planning Unit Futures.
3. Summary of Response to Proposed Objectives.

MT. HOOD PLANNING UNIT  
DRAFT ENVIRONMENTAL STATEMENT

PUBLIC INPUT ANALYSIS

This report contains a content analysis of the public response to the Mt. Hood Planning Unit Draft Environmental Impact Statement - Proposed Plan. This analysis includes all response received from March 1 to May 7, 1976, including response forms, public hearing oral testimony (Clackamas and Hood River Counties Planning Commission hearings) and written testimony submitted to Clackamas County.

A systematic approach was used to capture the diverse comments received. (see page 30 for description of process) The analysis was designed specifically to avoid interpretations or evaluations of the public response. Instead, the analysis condensed and recorded the varied opinions and comments of all respondents.

Because of the detailed nature of some of the responses, not all comments are included in the analysis.



## TABLE OF CONTENTS

SUMMARY	Page
RECOMMENDED CHANGES IN ALTERNATIVES PROPOSED PLAN, ALTERNATIVE B	1-5
Facilities	
Land Allocation	
Wilderness	
Recreation	
Skiing	
Geothermal	
ORV	
Miscellaneous	
Changes in Alternative A	
MAJOR ISSUES/CONCERNS	6-26
II Land Allocation	
III Population	
IV Cost Benefit	
V Highway	
VI Other	
PHYSICAL DATA	27-29
ANALYSIS PROCESS	30

MT. HOOD INTERAGENCY PLANNING UNIT  
PUBLIC INPUT ANALYSIS  
DRAFT ENVIRONMENTAL STATEMENT  
SUMMARY

A total of 472 inputs were received. All comments were analyzed by categories outlined in the response form. The percent column indicates the percent of total respondents. (472)

I OVERALL	Proposed Plan	Support	13%
		Oppose	6%
	Alternative A	Support	3%
		Oppose	22%
	Alternative B	Support	24%
		Oppose	8%
No Alternative Supported		7%	
No Preference Indicated		48%	

II LAND ALLOCATION	Proposed Plan	Support	4%
	Alternative A	Support	1%
	Alternative B	Support	12%
	Mt. Hood Meadows Overnight	Support	3%
		Oppose	5%
	Ski Area Expansion	Support	21%
		Oppose	6%
	Wilderness Area Exp.	Support	8%
		Oppose	6%

III POPULATION	Proposed Level One	Support	6%
		Oppose	-
	Proposed Level II	Support	10%
		Oppose	1%
	Alternative A	Support	-
		Oppose	2%
	Alternative B	Support	15%
		Oppose	2%

IV COST/ BENEFIT	Proposed Plan	Support	2%
		Oppose	2%
	Alternative A	Support	1%
		Oppose	2%
	Alternative B	Support	5%
		Oppose	5%
Economic Analysis Inadequate		16%	

V HIGHWAY	Highway 26 Proposed	Support	15%
		Oppose	1%
	Alternative A	Support	1%
		Oppose	-
	Alternative B	Support	7%
		Oppose	-
	Highway 35	Support	14%
		Oppose	-



## RECOMMENDED CHANGES IN ALTERNATIVES

The following are changes recommended by respondents for the Proposed Plan and for Alternative B. See end for comments on Alternative A. Numbers in ( ) indicate how many times comment was made.

PROPOSED PLAN		ALTERNATIVE B
<ul style="list-style-type: none"><li>- Less commercial facilities.</li><li>- Less residential development.</li><li>- Class nonconforming commercial uses as commercial when they are contiguous to and part of designated commercial centers.</li><li>- Plan for high density resort development.</li><li>- Don't prohibit building on all slopes over 25%, first provide for engineering analysis as to buildability.</li><li>- Use Alternative A housing density.</li><li>- Future development for overnight lodging should be on <u>Private Property</u> except proposed expansion of Timberline Lodge.</li><li>- Add bridge across Salmon River at Wildwood.</li><li>- Rest area at Lolo Pass Road and Highway 26.</li><li>- Hold development to minimum,</li><li>- Increase housing capacity by only 4000 DU more.</li><li>- Add monorail between Ski Bowl and Brightwood to reduce noise, air pollution, highway congestion.</li><li>- Include actual densities; square footage to be permitted for planned resort.</li><li>- Includes all lands in service district.</li><li>- People in Government Camp should decide if fire facility is wanted.</li><li>- More overnight facilities in ski areas (3).</li><li>- More restaurants and condominiums in Hood River area.</li></ul>	F A C I L I T I E S	<ul style="list-style-type: none"><li>- More facilities at Government Camp and Mt. Hood Meadows.</li><li>- Limit sewer construction because of high costs.</li><li>- Follow proposed plan highway recommendations.</li><li>- Provide more resort type overnight facilities at Government Camp and Timberline Lodge.(2)</li><li>- Keep development to minimum.</li><li>- Better sewer systems for small communities.</li><li>- No more development at Parkdale.</li><li>- Concern.</li><li>- Don't develop around Mt. Hood Meadows further.</li><li>- Restrict rural and low density housing.</li><li>- Housing in Hoodland corridor.</li><li>- Land allocated for low density development is needlessly low.</li></ul>

# PROPOSED PLAN

# ALTERNATIVE B

- Provide mix of uses which satisfies no one particular interest group.
- More dispersed recreation.
- East slope Hunchback Mountain should be dispersed recreation.
- Agricultural land from B.
- Add upper portion Hunchback to Salmon River Backcountry.
- More land for farming
- More land for general forest.(5)
- Include more general forest as Alternative A.(2)
- Use as Plan B for forestry, agriculture, industry and commercial.
- Put White River Meadows in environmental protection classification.
- Decrease scenic forest.
- Add more scenic forest.(3)
- Increase commercial acreage.
- More study of wilderness, scenic forest and general.
- Scenic forest should not apply to private lands.(2)
- Still Creek Valley should be maintained in natural state.
- Make "environmental protection" areas more precise as to boundaries.
- Transfer private land in "scenic forest" to federal ownership through purchase or exchange.
- Change scenic forest to general.
- Before classifying someone's land "scenic forest," the owner should be allowed to respond.
- All lands within existing tax lot carry same classification.
- All lots within plot should carry the same classification but don't downzone to obtain conformity.
- See Exhibit #14, page 31 for details of specific zone changes.
- Change definition of "wetland."

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- Conversion of some acreage from dispersed recreation to general forest and farming (more like Proposed).
- Limited development be permitted on private land designated scenic forest.
- Wilderness between Timberline and Mt. Hood Meadows changed to dispersed recreation.
- Maximize farming acreage in Hood River Valley.
- More general forest.(2)
- More environmental protection.
- Part of dispersed recreation should be general forest.
- Less scenic forest.
- Some of dispersed should be scenic forest.
- Some increase in general forest at the expense of scenic forest at lower elevations.(2)
- More provision for agricultural lands.(2)
- Use forest use categories as in Proposed for west approach.
- More scenic forest.



PROPOSED PLAN

ALTERNATIVE B

<ul style="list-style-type: none"> <li>- Wilderness boundary pushed down White River Canyon.(2)</li> <li>- Include entire Timberline Trail (except for areas already commercialized and southern slopes above ski lift elevation.</li> <li>- Don't put nearly all wilderness study into wilderness.</li> <li>- Wilderness study areas should be studied by citizen's committee or planners.</li> <li>- Decrease wilderness proposed.</li> <li>- Smaller wilderness increase.</li> </ul>	<p>W I L D E R N E S S</p>	<ul style="list-style-type: none"> <li>- Add small area between Clark and Newton Creek above Hood River Meadows to wilderness study.</li> <li>- Enlarge wilderness.</li> <li>- Marginal wilderness areas should be general forest.</li> <li>- Change wilderness proposed to back-country.</li> <li>- Drop additional wilderness study areas at Timberline and add Mt. Hood Meadows.</li> <li>- Omit extra 1000 acres wilderness study area near top of Mt. Hood.</li> </ul>
<ul style="list-style-type: none"> <li>- Greater emphasis on the ability of public lands to provide long term, high quality recreation experience.</li> <li>- More developed recreation.</li> <li>- Ramona Trailhead should not be moved as long as camping prohibited on trail loop.(2)</li> <li>- Hillside springs which feed into Hood River Meadows should be included in environmental protection area of the meadows.</li> <li>- Put trailhead at Welches.</li> <li>- Less area for car camping.</li> </ul>	<p>R E C R E A T I O N</p>	<ul style="list-style-type: none"> <li>- Expand Wildwood.(2)</li> <li>- Need more area for recreation growth.</li> <li>- Less area for recreation expansion.(2)</li> <li>- Concentrate developed recreation around existing areas.</li> </ul>
<ul style="list-style-type: none"> <li>- Don't designate "commercial" near Cooper Spur.</li> <li>- Multitorpor/Ski Bowl not expanded into Wind Lake Basin.(2)</li> <li>- No Palmer Chairlift.</li> <li>- More ski expansion.(5)</li> <li>- No ski expansion.</li> </ul>	<p>S K I I N G</p>	<ul style="list-style-type: none"> <li>- Adopt with ski areas of Proposed Plan.</li> <li>- More ski area.</li> </ul>

PROPOSED PLAN

ALTERNATIVE B

- Do not allow geothermal development.(3)
- Make provision for use of geothermal energy in area.(2)
- Study carefully before implementing.

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- Include geothermal development.
- Geothermal is in compatible use.

- ORV open Zigzag Mountain-Devils Canyon Road.
- No ORV near Timberline.
- More ORV area.
- No ORV use in primitive areas.

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- Prohibit
- Delete ORV Lolo Pass area.

- Develop design controls to ensure scenic quality.
- Add wildlife from Alternative B.
- Combine Cost/Benefit of Alternative B.
- Use population levels from Alternative B.(2)
- Use Alternative B transportation section.
- Use Alternative A highway improvements.
- No highway expansion.(3)
- More wildlife habitat
- Protect snag habitat for predators.
- Protect Timberline biome and Government Camp bog.
- Work harder on reforestation.
- No more than 19,000 increase in population.
- Clarify language on density of "planned resort" and "low density recreation" "usable land."
- Have citizens group review implementation of the plan.(2)
- Use adopted CH2M, Plan of Clackamas County.(2)
- Do not form another planning agency.

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- More logging could be allowed and still maintain the natural character.
- Adopt with Proposed Plan.
- Incorporate timber harvest of Proposed Plan.
- Add to Alternative B, west approach of Proposed Plan from Timber Management.
- Methane from septic tanks could offer creative alternatives to sewer and water problems.
- Continue timber harvest in overripe areas.
- Lower population levels.(3)
- Reduce ultimate population at Parkdale.(2)
- Allow for more timber harvest.
- Keep population at present levels.
- Add Proposed Plan timber management.
- Projected population too high at Parkdale.
- Fish rearing ponds Salmon River.
- Transportation needs should be related to recreation needs, not residential needs.



## ALTERNATIVE A

- Less deveveloped recreation, timber harvest, industry.
- Increase acreage in general forest, lessen scenic and wilderness study.
- Don't increase ski area parking.
- No new utility corridors.

## MAJOR ISSUES/CONCERNS

This section contains the comments made pertaining to major issues or concerns, identified through 1) content analysis summary; 2) information requested by executive committee.

For clarity, the format of the response form is carried throughout, so for certain subject matter, reading relationships may be made between the comments section and the summary.

The following sections contained substantive information. Where possible, the comments were divided into support and oppose segments.

II Land Allocation	Scenic Forest Category Dispersed Recreation Category Housing (general, resorts, rural, recreation) Government Camp Ski Area Expansion Wilderness Expansion Mt. Hood Meadows-overnight accom. Individual Property Owner's Rights Miscellaneous
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III	General Population Comments
-----	-----------------------------

IV	Cost Benefit Comments
----	-----------------------

V Highway	Highway 26 Highway 35 Mass Transit Miscellaneous
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VI Other	Sewer and Water Facilities Timber Management BLM-Wildwood Recreation Facilities Miscellaneous
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## II. LAND ALLOCATION

II LAND ALLOCATION	Scenic Forest Dispersed Recreation Housing (general, resorts, rural, recreation) Government Camp Ski Area Expansion Wilderness Expansion Mt. Hood Meadows Individual Property Owners Rights Miscellaneous
--------------------	--

## Scenic Forest

Make scenic forest largest designation.  
Make general forest scenic.  
Restriction on private land.  
Alternative B too much.  
Manage for timber production and partially retain scenic values.  
Consider scenic forest for proposed wilderness (Alternative B)  
Doubt wisdom or justice of designating private land as scenic forest.  
Delete scenic forest and replace it with general forest category!  
Scenic forest should not apply to private lands.  
Proposed category contrary to Oregon Forest Practices Act, change to reflect compliance.

Before classifying someone's land as "scenic forest" the owner should be notified and allowed to respond.

Remove scenic forest.  
Remove scenic forest from S16, T3S, R7E.  
Remove scenic forest in Hood River County.  
Clarify scenic forest designation.  
Placing great areas of forest under scenic forest designation will not meet LCDC goals for forest lands.

No scenic forest in areas that can't be seen from Highway.  
Scenic forest will conflict with timber production goals.  
Scenic forest creates tax burden.  
Scenic forest on private land could handle one home per five acres or so and not damage mountain character.

Scenic forest at southend of Government Camp is inappropriate.

## Dispersed Recreation

Favor dispersed over other classifications.  
More dispersed.  
W. Zigzag Mountain into dispersed in Alternative B.  
Lookout Mountain/Gumjuwac in dispersed.  
Hunchback/Salmon in dispersed.  
No density of facilities on roads.  
Make dispersed into General Forest & Farming.  
More land designated for cross-country skiing.  
Of paramount importance to the future of Mt. Hood.  
Still Creek area to dispersed recreation and manage as Salmon River backcountry.

Low elevation trail in Still Creek-Zigzag area.  
Trailhead at McIntyre Ridge/Cheney Creek trails.  
More access to wilderness, trailheads and trails.  
Maximize opportunities for hiking, backpacking, snowshoeing, and cross-country skiing.

Some of dispersed to scenic forest.  
Dispersed recreation around Timberline and Meadows not necessary to preserve wilderness.



## Housing, General

No housing that would degrade ecosystem.  
Small, new planned areas for population.  
Reduce seasonal in favor of small, permanent population.  
Restrict certain areas.  
Restrict to existing communities, not haphazard along highways.  
Quality instead of quantity.  
Short term (overnight) housing needed.  
Too much acreage for housing.  
Keep multiplex dwellings and businesses in the cities.  
Creating more housing create more need.  
Brightwood, Wemme, Zigzag, Rhododendron, Government Camp lie within potentially geologic hazardous radial to Mt. Hood.

Maybe housing at Government Camp.  
Too much development.  
No more hotels, vacation, homes, etc. Sandy and Hood River are close enough to developed ski resorts.

More overnight facilities.  
Need overnight accommodations between Government Camp and Hood River.  
Need seasonal and permanent residences at ski areas.  
Housing shortage for employees in skiing industry has created sharp competition in high rents for available housing.

Need for residential facilities.  
New overnight facilities at Timberline Lodge or private land in Government Camp, Welches, or Parkdale.

Accommodate human development while maintaining beneficial environmental values.

Need overnight housing.  
Housing plans need more reconsideration.  
Need more planned residential and resort land.  
General forest housing: change to one dwelling per 40 acres.  
Overnight accommodations expand at Government Camp & Welches, not swank resorts.

Develop only within established existing areas.  
Maximum of five acres of homesites will prohibit larger tracts.  
Allow transfer of development rights (ex. 21, p8-11)  
Too much housing built around Parkdale, Clear Creek.  
Summer homes and condominiums should not be allowed.  
Hotels limited to three story and in existing towns.  
More housing needs more sewers and fire protection.  
Deny building on slopes of 25% or more.  
Allow in non-agricultural areas only.  
Object to 1700 acre developmental site on Cooper Spur Rd.  
Renovate base areas such as Rhododendron and Wemme in keeping with natural surroundings.

## Resorts

Allow overnight accommodations at Cooper Spur.  
Control development at Mt. Hood Meadows.  
Concentrate them and have them more heavily clustered.  
No resorts on Federal lands.  
No planned resorts beyond enlargement of Bowman's.  
More resorts.  
Oppose condominiums.  
Lodging close to ski areas will bring more vacationers plus added income to business and revenue to our state.

2000 acres + needed for resort development.  
Not enough land.  
1500 acres + needed for resorts.  
Allow resorts, but limit them.  
More resorts at ski areas.  
Resort housing needed on north approach - Cooper Spur.  
Some resorts on Hood River side.  
More restaurants.  
More at Government Camp.  
Future development on private land except Timberline.

## Rural Residential

Most reasonable.  
Persons holding less than five acres at present should be allowed to construct a residence.  
Increase of taxes will put pressure on to subdivide orchard land.  
Put above elevation feasible for farming.  
Truman Road area be classified "rural residential."

## Recreation Residential

Phase out summer homes on Federal lands.  
Summer homes benefit few.  
Seasonal cabins keep area looking like outdoors.  
Not compatible with farmers.  
Does not keep with goals.  
Remove this category.  
Objects to Brightwood to Zigzag as "low density recreational."



## Government Camp

Designate special area for urban-type recreation.

A little more housing allowed.

Expand.

Protect bog at Government Camp (Map B shows it for Community Development)

Parking inadequate.

Growth permissible if accompanied by sewer development.

Need better balance in use of Government Camp area. Allow for tasteful development.

Government Camp should be treated separately; undercover parking, commercial designation, 40 ft. height restrictions, higher density.

Modest accommodations at Government Camp:

High density in unique area.

Expand ski area and overnight facilities for economic increase.

Small areas of high density zoning would provide overnight facilities.

Develop Government Camp with more recreation resident uses in lieu of development of Winterwood, Cedar Ridge and over at Mt. Hood Meadows.

Designate Government Camp a unique area; plan accordingly with adequate local involvement.

Follow Hoodland Plan.

Greater density in commercial.

Government Camp made into "Swiss Village."

Don't expand.

"Scenic Forest" at south end of Government Camp is inappropriate.

## Ski Area Expansion

### Support

6% projected increase not enough.  
1,000 acres more needed for overnight accommodations.  
Area for skiing should be doubled.  
20% growth rate of ski industry.  
Need more lifts.  
Parking needed.  
Expand Cooper Spur.  
Expand Government Camp and Rhododendron first, then to other areas.  
Expand Multitorpor toward Still Creek.  
Expand Timberline.

### Oppose

Expand Wilderness.  
Don't expand Meadows to White River.  
Don't permit Palmer.  
Don't expand Cooper Spur or Timberline.  
Don't expand Multorpor/Ski Bowl to Wind Lake Basin.  
If Mt. Hood Meadows permit area expanded toward White River, then exchange for land in present permit area adjacent to Hood River Meadows to create buffer zone for protection of hillside springs.

Don't expand Mt.Hood Meadows.  
Limit one-sided ski area development.  
Skiing not a need, it is a desire.  
Don't expand ski areas.



## Wilderness

Extend to top of Magic Mile.  
Allow natural fires.  
Preserve wilderness close to Mountain population.  
Use to circulate clean air and water.  
Wilderness Study areas have been studied for their suitability, and included as scenic forest, wilderness or general forest.

As much wilderness as possible.  
Need more.  
Lessen wilderness in Alternative A.  
Extend wilderness studies.  
No wilderness between ski areas.  
Designate wilderness as general forest.  
Cut back wilderness to present boundaries.  
Only areas not suitable for other uses should be in wilderness.  
Change existing fire and sanitation regulations or change wilderness to primitive areas.

No more commercial forest land should be set aside in wilderness category.  
Wilderness deprives older citizens privilege of going back into wilderness.  
Enough wilderness now.  
No new wilderness until we've determined how much wilderness is needed.  
Too much wilderness.  
Much wilderness reclassified as Scenic Forest.  
Reduce proposed wilderness.  
Some areas shown in wilderness are not suitable because of roads and recent logging.

## Mt. Hood Meadows - Overnight

### Support

Need employee overnight at Meadows.

### Oppose

Limited employee accommodations acceptable.  
More information needed on Mt. Hood Meadows Master Plan.  
Limited housing only as last resort (for employees).  
Commuter transit for employees.  
Develop Government Camp for recreational residences.

## Individual Property Owners Rights

Opposed to all controls on use of private land.

Do not encroach upon private property owners.

If plan prevents proper development, this land should be appraised and purchased by the Government.

Forest Service has no place in planning private property.

Can't take away private uses of land.

Transfer "scenic forest" from private lands to public lands through purchase or exchange.

Restrictions on private lands should take that land off tax rolls.

Before classifying someone's land as "scenic forest" the owner should be notified and allowed to respond.

Alternative A is too restrictive to private land owners.



## Miscellaneous

Enlarging Timberline in any way will lead to over-use.  
Use land for recreation.  
Include a map of volcanic hazards surrounding Mt. Hood IN EIS.  
More liberal on development.  
General Forest for upper NE Lolo Pass.  
General Forest for Still Creek.  
Well-defined utilization, would be better utilization of the land.  
Restrict size and type of logging equipment.  
Keep developers out.  
Get rid of "commercial" designation near Cooper Spur.

Don't give ORV best of our natural areas.  
Don't create urban area in area that has been so well for so long without urban development.

Allow for public recreation.  
Need more General Forest.  
Restrictive management supported.  
Don't expand Mt. Hood Meadows to Hood River Meadows.  
Don't expand Timberline above 7,000 level.  
No commercial expansion.  
Less development in South, Parkdale area.  
Local communities remain separated.  
Prohibit development of extended business district.  
Development allowed at Cooper Spur-keep visitor facilities at some distance.  
Aesthetic value of Mt. Hood is not considered.  
Not too many permanent residents.  
Overnight at Timberline.  
Keep commercial facilities at existing areas.  
Farming must compete.  
No controls on private lands.  
Minimum of 20 acres allowed to protect orchard land.  
No permitting strip development.  
Maintain minimum 20 acres/unit on agricultural land in Hood River County.  
Make land allocation classifications more specific.  
Don't use ORV in Lolo Pass.  
Good for area take precedent over individual's concerns.  
S11, T3S, R7E must remain low density residential.  
Emphasize minimum streamflow.  
Loss of timber sales will increase taxes.  
Must provide essential adequate facilities for recreation day and overnight use.

More ORV use areas.  
Farm lands in Alder Creek should be retained as agricultural.  
Minimum 20 acres lot size doesn't make sense.  
Farming shifted from Brightwood to Parkdale.

### III. POPULATION

III	General Comments
-----	------------------

#### Level I

With appropriate sewer and water connections.

Support development in Brightwood.

Don't be concerned with visitors.

Minimum growth.

No larger than at present.

Would like scenario that would show at what point increased population growth would cause environmental degradation.

All that should be allowed.

A little more population would not change atmosphere of Mt. Hood.



#### IV. COST BENEFIT

IV	General Comments
----	------------------

Keep costs to minimum.

People in area should pay for services.

More people, more costs. Don't allow trend to continue indefinitely.

Too high costs.

Slower growth, reasonable tax structure.

Costs underestimated.

Economic analysis adverse to local residents.

Economic consequences are adverse to welfare of State of Oregon, Clackamas and Hood River Counties.

"No growth" approach to area's already depressed economy can only be harmful. Public and private costs and benefits tend to remain in balance, especially if reasonably free market conditions are allowed to prevail.

Control property by taxing lands.

Public costs for administration, utilities, protection should be projected realistically. Private capital should be encouraged to provide other developments.

Not enough information.

Taxes must be compatible with plan.

V. HIGHWAY

V. HIGHWAY	Highway 26 (Conditions, Lanes)
	(Changes, Oppose )
	Highway 35 (Conditions, Lanes)
	(Changes, Oppose )
	Mass Transit
	Miscellaneous



## Highway 26

### Conditions

Below Rhododendron dangerous.  
Bad exits at Welches Road and Hoodland Center.  
Improvement okay Welches to Rhododendron.  
Needs widening.

### Lanes

From Timberline junction to Highway 35 make three lane.  
Timberline to existing 4 lane, make 3 lanes.  
3 lane from Government Camp to Highway 35 too costly.  
Should be 4 lanes.  
4 lanes east to Zigzag only.  
Zigzag east to Highway 35, 2 lane.  
4 lanes between Portland and Bend.  
4 lane to Brightwood to Highway 35.  
4 lane to Wapinitia junction.  
4 lane to Highway 35  
Should be 3 lane.  
2 lane to Timberline except 2.5 miles improved or widened.

### Changes

Make throughway with well marked exits and frontage roads.  
Split highway at Dwyer corridor.  
Widen to Highway 35.  
Improve highway as needed.  
Improvements concentrated in the Wildwood to Government Camp sections.  
Remove signs and derelict structures between Brightwood and Rhododendron.  
Widen to Rhododendron.  
Straighten between Government Camp and Snowbunny.  
Widened between Brightwood and Rhododendron.  
Improve Wildwood to Mt. Hood Meadows.  
Improve Brightwood to Government Camp.  
Wider roads Timberline to 35 junction.  
Entrances and exits need correcting.  
Improve but don't widen.  
Improved 2 lane or 3 lane is enough.

### Oppose

Highway building is a waste of money.  
4 lane would make mountain bedroom community for Portland.  
No 4 lanes to Government Camp.  
No further development.  
Costs underestimated.  
Do not need construction to meet peak needs.  
No four-lane highway.  
Do not widen.

## Highway 35

### Conditions

35 and 26 junction adequately improved.

### Lanes

4 lanes.

3 lanes.

Add one lane each way.

### Change

Mt. Hood Meadows needs improvement.

Improvements needed on Odell to Parkdale section.

Improvements needed from Mt. Hood Meadows to Highway 26 junction.

More passing lanes.

Widen from 26 junction to Mt. Hood Meadows.

Improve in accident prone areas.

Needs help from Meadows to Hood River.

Improve Meadows to Hood River.

More pullouts with trash containers, particularly above Sherwood Camp.

### Oppose

No further development.

### Mass Transit

Mass transit for winter recreation.

Commuter bus to ski areas.

Ski areas charge parking fees to encourage car pooling and mass transit use.

Shuttle service between Government Camp and Mt. Hood Meadows.

Meter roads during high use.

Preferential parking for buses.

Encourage mass transit.

Buses equipped to carry skis.

No mass transit other than to and from Portland with pick up stations.

Monorail from Ski Bowl to Brightwood.

Use mass transit and monorail.

Develop mass transit.

No mass transit.



## Miscellaneous

Exits and entrances improved.  
Build only roads widened.  
Maintain present instead of closing one and building more.  
Consider through traffic.  
Parking facilities needed in key areas.  
Highway adequate now.  
Widening roads into towns bad.  
Cut down on highways, use trails.  
State highway funds should not be allowed to plow ski areas.  
Highway should be updated and designed to conform to the State Highway Act.  
Adequate roads needed during winter.  
Remove freeway type signs at 26/35 junction.  
Entire new plan needed.  
Recommend road closures to restore use of subalpine areas of existing Mt. Hood Wilderness Area.

Relate to recreation needs, not residential.  
Improved sanding of ski area highways.  
Avoid freeway look; route away from communities.  
Build highways ahead of demand.  
Recommend road closure to restore use of subalpine areas of existing Mt. Hood Wilderness area.

Maintain scenic quality along roads.  
No strip development along highway.  
White River Bridge area needs parking facility.  
Limited access highway with small number of interchanges.  
No increase in lanes to Timberline Lodge.  
Timberline parking lot recon should have high priority.  
Build highway to Timberline.

## VI OTHER

VI OTHER	Sewer & Water Facilities Timber Management BLM - Wildwood Recreation Facilities Miscellaneous (Planning Process, geothermal, controls, etc.)
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## Sewers

Oppose development beyond Alternative B.  
No large sewer proposals should be considered.  
Don't use Timberline Rim treatment plant in floodplain.  
Support any new sewer proposal to keep sewage out of streams.  
Sewer plans for Brightwood-Hoodland area should be designed so a unified system would be possible.  
Sewers encourage development. Do not support.  
Needed in future only for present population with reason.  
No new sewers unless existing filled to capacity because of cost to residents.  
If sewers on privately owned land--then summer homes on Federal lands need to be connected as well.  
Cost borne by those that use them.  
Lower Welches and Arrah Wana needs sewer.  
Sewers only when needed.  
No further sewer development on private lands.  
Areas suitable for septic tanks should be allowed as such.  
Service needed for whole valley.  
No sewers in western corridor because of irreversible damage and too high costs.  
Proposed sewer levels (in Alternative B) in Parkdale will change assessments and doom profitability of agriculture.  
Minimum expansion at Timberline Rim.  
Commercial area sewers at Rhododendron; costs too high.  
Does not provide services to majority of properties.  
Most residents won't want to pay costs.  
Coordinate land use designations for "resort" with designation for sewers.  
Control development through expansion of service district for sewage.  
Cost per unit higher w/lower density.  
Sewers need now at Government Camp for present population.  
Sewer need at Mountain Air Park; willing to pay.  
PP or Alternative B.  
Keep costs low as possible.  
More sewers mean more people.  
Secondary treatment in winter not environmentally sufficient. Consider land treatment (letter #757)  
Limit sewer construction because of high costs.  
Develop sewer systems to service individual areas.  
Why are sewers more expensive in Alternative B?  
No expansion but improve for existing only.  
Don't need.  
Why planning for increased water development in west approach without concurrent planning for sewers?  
Will sewers interfere with recreational development?

## Water Service Area

Oppose development beyond Alternative B.  
No large water systems.  
Water systems encourage development. Do not support.  
Lower Welches and Arrah Wana Road need water.  
People directly benefitting should pay for them.  
Wells should be permissible.  
No overall water system indicated for lower corridor.

## Water Service Area (cont.)

Proposed service levels in Parkdale area will change assessments and doom profitability of agricultural land (Alternative B).  
Plans do not provide water to majority of properties.  
Consider service to whole area.  
Domestic water supply without chemical treatment should be protected.  
One unit/5 acres won't support public water supply.  
Include in service district: S30 T2S R7E.  
Water service area included in planned resort.  
No greater demand on water sources in Parkdale area.  
Water needed Mountain Air Park; willing to pay.  
Why planning for increased water development on west approach without concurrent planning for sewers?

## Timber Management

### More

Put critical areas in restrictive logging, others in general.  
Timber volume should be restricted to given amount.  
Treat as a crop.  
Economy of Pacific Northwest must not suffer at expense of few.  
Open for logging on sustained yield basis.  
Don't clearcut.  
Replanting program vital to timber resource.  
Cutback of timber land is unrealistic for our already established timber industry.  
Second growth timber is not suitable for Estacada mill.  
Continue to harvest "overripe" timber.

### Less

Eliminate all present and future logging insofar as permitted by law.  
Too much logging in all plans.  
Leave Mt. Hood as near natural as possible.  
No clearcutting.  
Supports "optimum sustained yield" as defined by L. B. Day, instead of "full yield timber production".  
Too much concentration on big business and Forest Service interests.

## BLM--Wildwood

Put bridge across Salmon River and trail built to tie to Huckleberry area.  
Wildwood should be expanded.  
Do not expand Wildwood.  
Plan B allows more expansion.

## Recreation Facilities

Move trailheads back.  
Put public parking areas on sewage treatment plant.  
Support trail development.



## Recreation Facilities (cont.)

- Day use trail orientation away from urban centers.
- Rest and information center built corner of Salmon River Road and Highway 26.
- Delete developed recreation along Salmon River except for Wildwood.
- Discourage commuting from Portland area; trails, bikeways encouraged.
- Limit "developed recreation" at Cloud Cap area.
- More places to camp.
- More picnic areas.
- Less for motor vehicles.
- Don't expand recreation.

## Miscellaneous

### Planning Process

- Public response should play an important part of deciding plan.
- Amend existing Mt. Hood Community Plan using technical data from EIS.
- Use Hoodland Community Plan 11/72.
- Opposed to Hood River County joining multiagency plan.
- Eliminate planning council.
- Don't want people from other parts of the planning unit deciding and making recommendations on what is valid for Hood River County.
- CAC not representative of interests of Hood River County.
- Oppose mountain area citizens advisory commission.
- Abandon proposal--appoint local groups and each county formulate own proposal.
- Postpone present plan until a more realistic one is brought forth.
- Hood River County does not have anything to do with what happens on the other side of the mountain.
- Plan cannot be implemented without participation of Hood River County.
- Eliminate Hood River County from plan.
- Failed to listen to citizen participation.
- More input via neighborhood association.

### Geothermal

- Permit geothermal.
- Heating needs of the Mt. Hood Planning Unit could easily be provided by the geothermal resources within the area.
- Geothermal heat from Mt. Hood area could supply alternative to oil and gas shortage.
- Encourage geothermal exploration in Government Camp.
- Question suitability and incompatibility of geothermal in plans.
- Geothermal hot water plans should be studied further.
- Support cautious consideration of geothermal development.

### Controls

- Tight controls on growth.
- Strict but flexible controls.

Miscellaneous (cont.)

Et cetera

Preserve wetland; more snow plowing.

Boundaries of planning unit not adequately described.

Cherryville to Wildcat Creek zoned 12/75. Should not be rezoned again.

Maintain environment and sense of community at most palatable cost to residents.

Provide more benefits to the public.

Fine station at Government Camp; not needed at Rhododendron.

Unfair to make A&B so extreme that people have to choose P.P.

Leave Mt. Hood area alone.



# PHYSICAL DATA

Who	Individual	88%
	Organization	8%
	Agency	4%

Where	Within Clackamas Planning Unit	10%
	Within Clackamas County	10%
	Within Hood River Planning Unit	7%
	Within Hood River County	6%
	Multnomah County	30%
	Oregon	6%
	Out of State	7%
	Unknown	22%

How	Response for (and/letter)	57%
	Letter only (written testimony)	13%
	Combination(written, testimony, etc)	6%
	Testimony Only	14%
	Form Letter (outside source)	10%

What	Resident of Planning Unit	3%
	Owns property in Planning Unit	8%

	Public Land comments only	
	Private Land comments only	1%

Statement	See original Letter	45*
	Environmental Statement	41*
	Confusion of Issues	1

\*See attached list

## ANALYSIS PROCESS

Input received on the Mt. Hood environmental statement, Mt. Hood Planning Unit was analyzed using the Codinvolve system. This system was developed by the Pacific Northwest Forest and Range Experiment Station, and has been used successfully on a number of Forest Service projects requiring public input analysis.

Codinvolve is a content analysis summary system using a McBee Keysort card. The card enables the coders to capture a variety of comments. Basically, the format of the response form was used as a basis for the code card. In addition, the evaluative committee determined a number of potential issues/concerns that they listed into the appropriate category of the response form.

### Process for Developing Code Card

- Identify physical items to be coded.
- List issues/concerns to be coded.
- Randomly analyze 40-50 responses to determine additional summary categories and needs.

Design card and write codebook for each line item to be added.

A copy of the codebook is included in the document for reference.



Individual  
Organization  
Agency

Letter #

Inputs

Signatures

Coder

MT. HOOD INTERAGENCY  
PLANNING UNIT  
DRAFT EIS

5/76

CCPU/Clack. Co.

HRPU/Hood River Co.

Mult. Co./OR

Out of st./Unknown

Response/Letter

Comb./Testimony

Form letter

Resident/Owner

Public land/Private

See original letter

EIS Comments

Confusion of issues

B9: Reasons

6% not enough

1,000 acres more needed

Not enough area

Area be doubled

20% growth rate

Other

I. OVERALL

P/C Proposed Action

P/C Alt. A

P/C Alt. B

No Alt Supported

No preference indicated

II. LAND ALLOCATION

P/C Mt Hood Mdws-over.

P/C Ski area expansion

P/C Wilderness

PP land alloc agree

Alt A land alloc agree

Alt B land alloc agree

Scenic Forest

Dispersed Rec.

Housing - General

Resorts

Rural residential

Rec. residential

Gov't. Camp

Timber Mgmt more/less

Other

III. POP

P/C population Level One

P/C population Level Two

P/C Alt. A

P/C Alt. B

IV. C/B

P/C proposed plan

P/C Alt. A

P/C Alt. B

Econ analysis inadequate

V. HIGHWAY

P/C PP Highway 26

P/C Alt. A Highway 26

P/C Alt. B Highway 26

P/C Highway 35

Other

VI. OTHER

Sewage Facilities

Water Service area

Indiv. property owner rights

BLM-Wildwood

Recreation Facilities

Other

D-3

OPPOSING REASONS											
Proposed											
Population											
Too high costs											
Too much development											
Environ. degradation											
Not enough ski exp.											
Too much ski exp.											
Too much wilderness											
Too much scenic forest											
Not enough dispersed											
Other											
Changes											
Alternative A											
Population											
Too high costs											
Too much development											
Environ. degradation											
Not enough ski exp.											
Inadequate											
Other											
Changes											
Alternative B											
Not enough development											
No ski area exp.											
Doesn't protect scen.											
Not economical											
Environ. unsound											
Doesn't permit res. use											
Inadequate											
Other											
Changes											
SUPPORTING REASONS											
Proposed											
More Wilderness											
Population & growth											
Limits development											
Provides nec. trans.											
Other											
Changes											
Alternative A											
Economics											
Meets all needs											
Other											
Changes											
Alternative B											
Mtn. character											
Population											
Economics											
Natural environment											
Less environ. effects											
Other											
Changes											



SUMMARY OF THE PUBLIC RESPONSE  
TO THE MT. HOOD PLANNING UNIT FUTURES

The following is a summary of the analysis of public response to the Mt. Hood Planning Unit Futures. The Futures (land use alternatives) were described in a brochure that was distributed to the public during March 1975. The brochure contained a response form in order to facilitate replies. This summary offers a brief overview of the complete analysis of the public input that was received on the response forms. We must emphasize that this is only a summary of the analysis of public response and the reader is referred to the complete analysis for further information and details. The complete analysis is available for review at the following places: Clackamas County Planning Department, Hood River County Planning Department and the Mt. Hood National Forest Supervisor's Office.

Over 3200 brochures were printed and distributed to various individuals, organizations and local, state and federal agencies. Five hundred forty-one (541) response forms were returned.

The response form was formulated especially for the purpose of assessing public reaction to the management Futures described in the brochure. It was designed specifically to determine the following:

1. Which Futures were most supported by respondents.
2. Which features or elements of the Futures had the strongest or least support.
3. Which users of the Planning Unit had responded and what was their Future preference.
4. Were an adequate range of land use alternatives being considered.
5. Were all user views heard from.

Respondents were asked to indicate on the form what Future they preferred, what elements (i.e. Agriculture/Forestry, Housing, etc.) they liked or disliked, what areas of the Planning Unit they used and what activities they participated in. There was also space provided to write out a new Future and space for other comments. There was no word or space limit. Some respondents returned multipage comments. All public response was given equal consideration and each was fully recorded.

A few words of caution about the analysis: It is not based on a demographically sound survey. It should not be construed as a one-man, one-vote return. Rather, this analysis attempts to condense and record the varied opinions and comments of all respondents.

The Mt. Hood Planning Unit would like to express their appreciation to all citizens, agencies and organizations who took the time to return the "Futures" response form. Much of the comment was thoughtful and well informed. We feel that the complete analysis provides a valuable log of public opinion and encourage all those interested to review it.

## I. Geographic Distribution of Respondents

The majority of respondents were from Multnomah and Clackamas Counties (43% and 24% respectively). Seven percent of the respondents were from Hood River County and 6% were from Washington County. The remaining 10% were from other areas in Oregon, Washington and other states.

## II. Alternative Future Preferred

Space was provided on the response form to indicate generally which Future was most preferred. Of the 541 total respondents, 469 respondents checked one or more of the Futures as being preferred. The following shows the percentage of respondents indicating a preferred Future.

Future 1 - 2%  
Future 2 - 28%  
Future 3 - 43%  
Future 4 - 4%  
None of the Futures - 19%  
Combination of Futures - 4%

Respondents were given the opportunity to indicate preferences for specific aspects or elements of the Futures (i.e. housing, recreation, transportation, etc). Detailed information on these responses is included in the complete analysis.

## III. Comments

Respondents offered a variety of comments to the "Futures" and on the future management of the Planning Unit. The following comments are some of those most frequently mentioned:

Maintain agricultural lands.  
Maximize timber harvest.  
Protect scenic values.  
No further housing or commercial development.  
Limit new housing development.  
No new wilderness.  
Maximize wilderness.  
Control planned recreation development.  
Preserve wildlife - protect habitat.  
No new power corridors.  
Encourage mass transit.  
No further highway development.  
Improve sewers, water systems and solid waste disposal as needed.  
Allow wildfire to play a natural role.  
Improve and provide schools and fire and police protection as needed.  
Tax according to land use.  
Need for local representatives in administration.  
Stricter local control needed.

Space was provided for respondents to indicate what values they felt to be most important in the Planning Unit. Some of the most frequently mentioned were



recreation, timber, wilderness and scenic beauty. Respondents also offered a variety of other comments which included "Leave Mt. Hood as natural as possible," "Control growth," and "Recreation should be a major land use with a stress on public access."

#### IV. Recreation Uses

On the response form, people were asked to indicate which recreation activities they participated in in the Planning Unit. The following shows the percentage of the total number of respondents participating in individual activities.

Hunting - 15%	Snowmobiling - 3%
Camping - 54%	Downhill skiing - 30%
Motorbike - 2%	Hiking - 58%
Golf - 9%	Horse - 8%
Fishing - 41%	Nonmotorized winter sports - 30%
Picnicking - 48%	Other (Off-road vehicle use, photography, etc.) - 30%

Many respondents said they took part in several different activities.

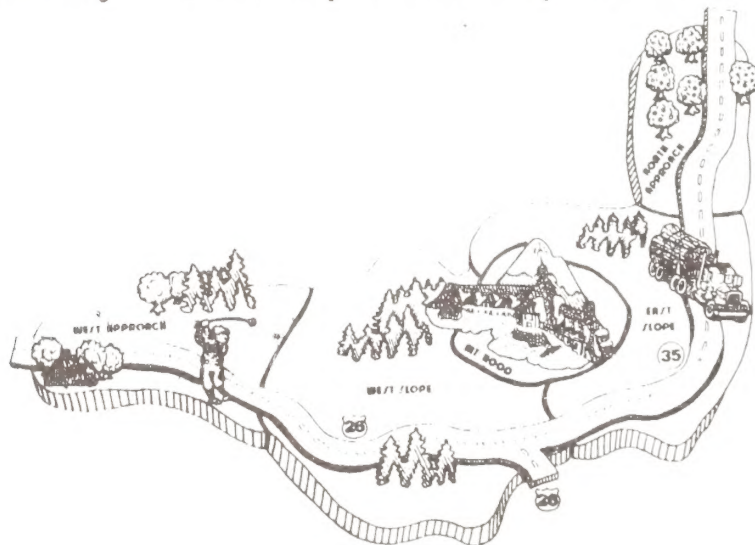
#### V. Work and Residence

Respondents were also asked to indicate on the response form if they worked or lived in the Planning Unit. Five percent of the respondents said they worked on a farm or orchard, 16% worked in the forest, 12% worked in a business or service capacity and 13% indicated some other kind of work.

Thirty percent (30%) of the respondents said they had a seasonal (13%) or permanent (17%) residence in the Planning Unit while 3% don't use the Planning Unit.

#### VI. Areas Used

The most frequently mentioned area used in the Planning Unit was the west end or west approach (39% of the respondents). Thirty-three percent (33%) said they use Mt. Hood, 29% use the west slope, 19% use the east slope and 13% use the north end (north approach). Twenty-six percent (26%) indicated they use all the Planning Unit and only 1% said they don't use any of the area.



## MT. HOOD PLANNING UNIT

### SUMMARY OF THE ANALYSIS OF PUBLIC INPUT ON THE PROPOSED OBJECTIVES

The Mt. Hood Planning Unit has been fortunate in receiving a considerable amount of public input addressed to the proposed land use planning objectives. Many individuals devoted much time and consideration in preparing their comments.

This summary offers a brief overview of the complete analysis of the public input that was received in the "citizen response forms" distributed by the unit. We must emphasize that this only is a summary of the analysis of public input and the reader is referred to the complete analysis for further information and details. The complete analysis is available for review at the following places: Clackamas County Planning Department, Hood River County Planning Department, and the Mt. Hood Supervisor's Office.

The citizen response form was formulated especially for the purpose of assessing public reaction to the twenty proposed objectives, or goals, for the Mt. Hood Land Use Plan.

Specifically, the survey of public opinion was designed to 1) test the validity of objectives formed from existing plans and policies as modified by the Citizen Advisory Committee, the Planning Team and the Executive Committee, 2) determine the strength of public opinion for each individual objective, and 3), determine if there are any additional important objectives that need to be considered. The final objectives will be used in developing alternative land use plans and to test the success of these plans.

The forms and an explanatory brochure were distributed during July and August, 1974. The deadline for public response was August 23, 1974. The objectives were listed on the form. The respondent was asked to circle the number that most closely corresponded to his or her view of the importance of each objective, where:

1. The respondent strongly supports the objective
2. The respondent agrees with the objective
3. The respondent has no opinion
4. The respondent disagrees with the objective
5. The respondent strongly opposes the objective
6. The respondent feels that the objective is inappropriate for the Planning Unit.

Besides this, space was provided beneath each goal for written comments and at the end of the form for additional objectives or comments. All public response was given equal consideration. There was no word or space limit.

More than 400 completed questionnaires were returned to the Mt. Hood Planning Unit. What conclusions about public opinion can be drawn from this response?

To begin with, one must be cognizant of what this response does not explain. It does not provide a clear statement of what objectives the public feels are of greatest importance since a priority ranking was not requested on the form.



Most importantly, the absence of a demographic method in the distribution of response forms preclude treating this report as a comprehensive account of citizen opinion concerning Mt. Hood land use planning.

We cannot over-emphasize the importance of not reading this paper as the results of a scientifically constructed public opinion survey. Distribution methods made it impossible to assure proportional distribution to and response from the myriad of social, economic and geographic interests affected by land use decisions. Furthermore, the amount of response was rather small. Only eight percent of the 5500 questionnaires that were distributed were returned. Only miniscule fractions of the populations of Hood River County, Clackamas County and the Portland metropolitan area responded.

Besides the absence of demographic sampling and the limited amount of returned forms, problems with the wording of the objectives disallow treating this report like a ballot count and even limit the reliability of standard statistical analysis. Many of the respondents pointed out that the objectives were often ambiguous, too general or were too complex to be answered by a few written lines, let alone a circled number. Consequently there are a great number of responses where no number is circled or where the individual complained about this problem in his or her written comments. Others complained that nearly all of the objectives sounded so agreeable that one could easily circle the strong support response for each one even though one might disagree with policies undertaken to realize them. The overwhelmingly positive response to most of the objectives might partially corroborate this complaint.

In the analysis, it was necessary to generalize some remarks. In such cases there was a trade off between recording the rather wide diversity of opinion and summarizing the input in a coherent manner. If all the diverse comments had been recorded, the list would have been too large to be easily analyzed or evaluated. It is therefore, impossible to read the summary and state categorically, "x number of people wrote this about objective y".

Nevertheless, this report shall include a numerical summary of the response keeping in mind the limitations discussed above. This summary is useful in showing relationships between reactions to different objectives.

Though this summary of citizen response cannot answer certain questions concerning public opinion and though appropriate limitations must be made on the interpretation of the response that has been received, the public involvement efforts of the past few months have not been fruitless. The planning unit has received an appreciable amount of public comment on the proposed objectives. Much of it is quite thoughtful and well informed. Even though it is not advisable to read this report as election returns or as the results of a demographically sound survey, the response forms constitute a valuable log of public opinion.

# OBJECTIVE ONE

A WIDE VARIETY OF PUBLIC AND PRIVATE RECREATION OPPORTUNITIES COMPATIBLE WITH THE MOUNTAIN ENVIRONMENT.

	Not Stated (0)	Strongly Support (1)	Agree (2)	No Opinion (3)	Disagree (4)	Strongly Oppose (5)	Objective Inappropriate (6)
Total	18	136	146	14	41	39	12

## MAJOR REMARKS:

1. The principle for future development should be multiple use management. Develop the recreational potential of the area. (11) \*
2. There should be some restrictions on the development of a "wide variety". The environment can't support all uses. (24)
3. Restrict further growth in general. Further growth will do damage to the environment. (26)
4. Restrict motorized, off-road vehicle opportunities. (12)
5. The main concern for the Planning Unit should be preservation of the environment. (24)

# OBJECTIVE TWO

PROTECTION OF THE EXISTING MT. HOOD WILDERNESS; PROVISION OF ADEQUATE WILDERNESS LAND THAT MEETS WILDERNESS CRITERIA.

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Total	7	288	72	10	16	7	6

## MAJOR REMARKS:

1. The size of the designated wilderness area should be enlarged. (33)
2. The respondent has specific proposals for additions to the designated wilderness area. (19)
3. Do not expand designated wilderness area. (23)
4. This objective is very high priority. (12)

\* Numbers in parentheses indicate total number of respondents making that remark.

# OBJECTIVE THREE

INTENSIVE TIMBER MANAGEMENT OF SUITABLE PRIVATE AND PUBLIC FOREST LANDS ON A SUSTAINED YIELD BASIS WHILE PROTECTING SCENIC, RECREATIONAL AND ECOLOGICAL VALUES OF THE MOUNTAIN ENVIRONMENT.

	Not Stated (0)	Strongly Support (1)	Agree (2)	No Opinion (3)	Disagree (4)	Strongly Oppose (5)	Objective Inappropriate (6)
Total	14	173	113	17	29	43	17

## MAJOR REMARKS:

1. Reduce logging in general. (17)
2. Allow timber harvesting subject to nondegradation of the environment. (26)
3. Allow logging according to the best scientific information and see that the recreational, scenic and ecological values of the area are preserved. (10)
4. Limit clearcutting. (13)

# OBJECTIVE FOUR

RETENTION OF THE UNIQUE VISUAL CHARACTER AND SCENIC VARIETY ASSOCIATED WITH THE MOUNTAIN LANDSCAPE. SPECIFICALLY AVOID STRIP DEVELOPMENT.

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Total	7	295	75	10	11	5	3

## MAJOR REMARKS

1. Stop further strip development. (18)
2. Limit additional development. (10)



OBJECTIVE FIVE  
PROTECTION, MAINTENANCE AND ORDERLY RESTORATION OF AIR, WATER  
AND SOIL QUALITIES.

	Not Stated (0)	Strongly Support (1)	Agree (2)	No Opinion (3)	Disagree (4)	Strongly Oppose (5)	Objective is Inappro- priate (6)
Total 6	275	98	14	3	4	6	

MAJOR REMARKS:

1. No restoration is needed. Water and air quality is already high. (9)
2. Close monitoring of high standards of quality is necessary. Strict enforcement is needed. (9)

OBJECTIVE SIX

PROTECTION OF WATER RESOURCES TO ASSURE AND MAINTAIN A LONG RANGE  
ADEQUACY OF SUPPLY FOR BOTH CONSUMPTIVE AND NONCONSUMPTIVE USE.

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Total 6	298	86	7	1	2	6	

MAJOR REMARKS:

1. The Objective is important for the continued livability of the area. (6)
2. Review impact of logging and development on water supply. (5)
3. Do not allow any dam construction. (5)
4. This objective is very high priority. (5)

OBJECTIVE SEVEN

PROTECTION OF ALL WET LANDS, STREAMSIDES, MAJOR STREAM CORRIDORS AND  
FLOODPLAINS AS CRITICAL ENVIRONMENTAL RESOURCES.

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Total 7	265	80	17	24	5	8	

MAJOR REMARKS:

1. These areas are critical environmental resources. (11)
2. Restrict camping, development, drainage and logging in these areas. (13)
3. This objective is very high priority. (12)

OBJECTIVE EIGHT

IDENTIFICATION, PROTECTION AND MAINTENANCE OF SIGNIFICANT HISTORICAL AND  
ARCHAEOLOGICAL SITES AND STRUCTURES (e.g. Timberline Lodge and the Old  
Barlow Road, etc.)

	Not Stated (0)	Strongly Support (1)	Agree (2)	No Opinion (3)	Disagree (4)	Strongly Oppose (5)	Objective is Inappro- priate (6)
Total 4	256	120	12	9	2	3	

MAJOR REMARKS:

1. Preserve historical landmarks for posterity. They are a valuable part of our heritage. (9)
2. How is the significance of historical sites defined? Be cautious. (7)
3. Protect Timberline Lodge. (7)

OBJECTIVE NINE

PROTECTION AND PROVISION OF ADEQUATE HABITAT FOR WILDLIFE SPECIES NATIVE  
TO THE AREA.

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Total 6	280	98	8	9	2	3	

MAJOR REMARKS:

1. Protect habitats by restricting timber sales and development. Increase designated wilderness area. (10)
2. This objective is very high priority. (12)

OBJECTIVE TEN

CONSERVATION OF FARMLAND AS AN IMPORTANT ECONOMIC AND SCENIC RESOURCE.

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Total 9	215	124	31	15	7	5	

MAJOR REMARKS:

1. Save productive farmland. (17)
2. Save only economically sound farmland. (13)
3. Limit further subdivision and development of farmland. (17)
4. This objective is unnecessary and redundant. (11)

# OBJECTIVE ELEVEN

MAINTENANCE OF ENVIRONMENTAL QUALITY IN INSTANCES WHERE USE OF ENERGY AND MINERAL RESOURCES IS PERMITTED.

	Not Stated (0)	Strongly Support (1)	Agree (2)	No Opinion (3)	Disagree (4)	Strongly Oppose (5)	Objective is Inappropriate (6)
Total	20	209	125	25	9	9	9

## MAJOR REMARKS:

1. Mining disrupts the ecology; it should be banned from the area. (20)
2. Only mining that does not damage the environment should be allowed. (31)
3. The objective is too abstract, general or may result in the implementation of policies that I disapprove of. (13)

# OBJECTIVE TWELVE

MAINTENANCE OF THE CONDITIONS WHICH PRESENTLY MAKE THE PLANNING AREA DESIRABLE FOR USE THROUGH LIMITS ON THE NUMBER OF PEOPLE AND THEIR RELATED ACTIVITIES AND FACILITIES.

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Total	19	212	101	20	24	21	9

## MAJOR REMARKS:

1. Limits are hard to determine and enforce fairly. (11)
2. Plan wisely to allow for further growth instead of limit use. There is still capacity for orderly growth. (16)
3. This objective is very high priority. (10)

# OBJECTIVE THIRTEEN

A MORE STABILIZED ECONOMY.

	Not Stated (0)	Strongly Support (1)	Agree (2)	No Opinion (3)	Disagree (4)	Strongly Oppose (5)	Objective is Inappropriate (6)
Total	22	110	108	90	17	12	47

## MAJOR REMARKS:

1. This goal might possibly conflict with other goals since it might encourage more development and logging. (24)
2. The planning unit's main concern should be for the environment, not the economy. (15)
3. The objective is too abstract, general or may result in the implementation of policies that are disapproved of. (24)

# OBJECTIVE FOURTEEN

COMMUNITIES WITHIN THE PLANNING UNIT MAINTAIN INDIVIDUALITY, PHYSICAL SEPARATION AND DIVERSITY OF CHARACTER AS RELATED TO THE MOUNTAIN SETTING.

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Total	15	151	147	39	19	14	11

## MAJOR REMARKS:

1. "Sense of Community" must be compatible with the environment and the plan. (18)
2. Present communities must develop a "sense of community". (9)
3. Limit growth in general. (9)
4. This goal is hard to achieve. (9)

# OBJECTIVE FIFTEEN

ORDERLY DEVELOPMENT OF A TRANSPORTATION SYSTEM BALANCED TO MEET AREA NEEDS AND COMPATIBLE WITH THE MOUNTAIN ENVIRONMENT.

	Not Stated (0)	Strongly Support (1)	Agree (2)	No Opinion (3)	Disagree (4)	Strongly Oppose (5)	Objective is Inappropriate (6)
Total	16	136	152	37	21	28	16

## MAJOR REMARKS:

1. Improved transportation might open the area up to overdevelopment. (16)
2. Develop mass transit. (33)
3. Restrict auto-oriented transportation (such as roads, parking lots, etc.) (44)



OBJECTIVE SIXTEEN

PROVISION FOR A VARIETY OF HOUSING THAT MEETS COMMUNITY NEEDS WHILE BLENDING WITH THE NATURAL BEAUTY AND RESOURCES OF THE MOUNTAIN LANDSCAPE.

	Not Stated (0)	Strongly Support (1)	Agree (2)	No Opinion (3)	Disagree (4)	Strongly Oppose (5)	Objective Inappropriate (6)
Total	23	93	135	32	40	57	21

MAJOR REMARKS:

1. Limit the amount and the intensity of more development. (53)
2. Limit further large scale development. (12)
3. Limit housing according to environmental, scenic and the plan's restrictions. (16)

OBJECTIVE SEVENTEEN

PROVISION FOR ADEQUATE BUSINESS AND COMMUNITY SERVICE FACILITIES COMPATIBLE WITH THE MOUNTAIN CHARACTER AND CONSISTENT WITH ENVIRONMENTAL CAPACITY.

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Total	20	94	163	35	33	41	20

MAJOR REMARKS:

1. Allow only an essential minimum of businesses. (20)
2. Limit all development. (43)
3. Development should fit into environmental capacity. (14)

OBJECTIVE EIGHTEEN

ESTABLISHED BUSINESS AREAS AND AREAS PREVIOUSLY SUBDIVIDED AND SUITABLE FOR HOUSING HAVE PRIORITY FOR NEW DEVELOPMENT.

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Total	21	91	132	47	47	51	19

MAJOR REMARKS:

1. Limit development in these areas. (41)
2. Allow only development that is compatible with the scenery, ecology and the plan. (14)
3. Limit all new development. (27)

OBJECTIVE NINETEEN

EFFECTIVE PLAN IMPLEMENTATION, INCLUDING ADEQUATE FUNDING. AGENCIES WILL WORK TOGETHER IN REVIEWING, MONITORING AND ENFORCING RESULTING POLICIES, STANDARDS AND ORDINANCES.

	Not Stated (0)	Strongly Support (1)	Agree (2)	No Opinion (3)	Disagree (4)	Strongly Oppose (5)	Objective Inappropriate (6)
Total	27	176	145	31	9	12	6

MAJOR REMARKS:

1. A comprehensive plan (not modified by special interest groups) and strict enforcement of the plan are necessary. (11)
2. Too many agencies are involved. Limit the bureaucracy. (7)
3. Cooperation on a Regional basis is important. (7)
4. Citizen input is necessary. (7)
5. This objective is very high priority. (8)

OBJECTIVE TWENTY

OPPORTUNITIES FOR CITIZEN PARTICIPATION IN THE PREPARATION, IMPLEMENTATION AND REVIEW OF THE MT. HOOD INTERAGENCY PLAN.

	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Total	16	273	93	9	5	3	7

MAJOR REMARKS:

1. Citizen participation must be effective and should be broad based. It should not be an opportunity for special interest groups. (41)
2. The Planning Unit citizen involvement efforts must be innovative. Adequate communication is important. (10)

ADDITIONAL COMMENTS

1. The survey is a good idea; the Planning Unit is doing a good job. (10)
2. The objectives are vague, general or are not clear in what they imply. (15)
3. Land must be comprehensively planned to remain desirable for all. (12)
4. Limit all further growth on the mountain. (23)
5. Protect wilderness and back country areas. (12)
6. Make greater provisions for horse-oriented recreation (more trails, watering holes, etc.) (12)

## CONCLUSIONS

It was difficult to summarize the public input contained in the citizen response forms. The written comments addressed to some of the individual objectives posed knotty enough problems for analysis. For a better understanding of the total input, the reader is referred to the complete analysis. Nevertheless, it is possible to draw a few conclusions about public opinion concerning the Mt. Hood Planning Unit as expressed in the questionnaires.

The most widespread sentiment seems to be that unbridled development of the area must cease. The relative negative response to the sixteenth, seventeenth, eighteenth objectives dramatically registers this. Public concern over excessive growth arises from two sources. One is the opinion that the mountain environment cannot shoulder the burden imposed upon it by too much use. The importance of preserved environmental quality is expressed in the strong public support for the fifth, sixth and seventh objectives. The other source of concern is that the untempered economic, commercial and recreational growth will lead to conflicts between uses.

Both concerns lead people to the conclusion that decisions must be made about what uses of the mountain should have the highest priority. This is where conflict arises. This conflict is represented in the written response to the objectives.

For example, though most people agree in the first objective, that mountain recreational opportunities must be preserved, there are a great number of different suggested restrictions on recreation. Also, in spite of their desire for recreational activities, a great number of people seem willing to accept limits on the uses of the mountain. By accepting limits, they hope to insure the continued quality of their recreational experience. (See objective twelve.) The question of priority of uses arises in discussions of timber harvesting (in objective three) of energy and mineral mining (objective eleven) and housing and commercial development (in objective sixteen and seventeen). In the written responses to each of these, the recurrent debate centers over environmental damage that may result from the implementation of the goal as well as a questioning of the priority of each objective.

Having identified some of the broad concerns evident in the general aggregate of public input, it is fruitful to inspect specific reactions to the objectives. As mentioned above, the fifth, sixth and seventh objectives, which deal respectively with maintenance of environmental quality, protection of water resources and protection of wetlands, received very strong support. Closely related to this group of goals are the second, fourth and ninth objectives which received similarly strong support. The fourth goal calls for the preservation of the mountain's scenery, the second advocated protection of the Mt. Hood Wilderness Area and the ninth concerns itself with the protection of wildlife. The positive response to all of these objectives owes to the conviction expressed in the written comments that the environment and the present quality of much of the Mt. Hood Area should be preserved.

The thirteenth, sixteenth, seventeenth and eighteenth objectives deal with economic development. The numeric support for all of these, considerably lower than the support shown for other objectives. The general line of written comment is that, though a stabilized economy, adequate housing and adequate community development are important, the adoption of these goals may lead to excessive economic development or undesirable governmental interference with the economy.



Also related to the economy are the third and eleventh goals which deal with timber harvesting and mineral and energy development. Here, the concern is that excessive levels of activity will lead to environmental degradation or will impinge upon other uses of the mountain.

As mentioned before, there is a consensus expressed in the response to the first objective, that recreational opportunities must be preserved. However, support is qualified on the condition that the mountain does not become over-developed. To insure against over-development, the support for the twelfth objective indicates that limits on the use of the mountain will be tolerated.

There is a collection of four other goals dealing with comparatively discreet issues. Support is strong for preserving historical and archaeological sites (objective eight) and farmland (objective ten). Objective fourteen advocates preserving the identities of the different mountain communities. There is a general degree of support for this goal, but many people wonder what is involved in its implementation.

Even though the numeric support for objective fifteen was not comparatively strong, an overwhelming amount of people wrote in that mass transportation and alternatives to the automobile must be developed.

The final two objectives deal with the implementation of the land use plan. Support for implementation and enforcement of the plan is expressed in the response to the nineteenth goal. However, quite a few individuals are concerned over excessive government power. The response to the twentieth goal indicates strong support for citizen participation in the planning process.

The remarks and objectives added at the end of the form touch on a wide variety of issues. Many people are pleased with the Planning Unit's efforts. However, many complain about the abstract wording of the planning objectives. Besides these comments, a number of general land use objectives were proposed. Some of the more frequently mentioned objectives were:

1. A comprehensive land use plan is necessary.
2. Further development of the mountain should be limited.
3. Use should be made of the mountain's natural resources.
4. The scenery and ecology of the mountain should be protected.
5. Government power should be limited.

In addition to these general proposals, there was a large collection of specific land use policies. Two oft-repeated ones were that provisions should be made for horseback riding and that the designated wilderness area as well as other back-country areas should be protected.

A general table of results was not prepared because the issues involved in most of these objectives were too complicated to be addressed in numbers alone and to prevent review of the analysis as a vote count. The diversity and the informed nature of much of the comment demands a perusal of the written response to each of the objectives. We encourage all those interested to review the complete analysis of public input.

## EXHIBIT E

### SPECIAL REPORTS

#### PREPARED FOR THE MT. HOOD PLANNING UNIT

Collins, Melvin D. August 1974. Fish Resources and Management of the Sandy and Hood River Systems Within the Mt. Hood Planning Unit. Fish Commission of Oregon - Division of Management and Research.

Estimates and Projections Visitor Use Days, By Activity, Mt. Hood National Forest 1970 and 1990. 1974. Columbia Region Association of Governments, Staff Working Paper.

General Work Plan - Hood Input Interagency Planning Team, Mt. Hood Planning Unit. June 24, 1973.

Hutchins, James A. 1977. A Socio-Economic Description - The Mt. Hood Planning Unit. U.S. Forest Service.

Lisner, F.G. and H.R. Sweet. 1974. Mt. Hood Study Groundwater. Oregon State Engineer, Groundwater Division.

Mt. Hood Planning Unit - Its Wildlife. 1975. U.S. Forest Service. Staff Working Paper.

Population Projections, Housing Needs and Capacity in the Mt. Hood Planning Unit. June 11, 1975. Columbia Region Association of Governments. Staff Working Paper.

Public Input Analysis - Mt. Hood Planning Unit Futures. 1975. U.S. Forest Service.

Public Input Analysis - Mt. Hood Planning Unit Objectives. 1974. U.S. Forest Service.

Olsen, James M. 1977. Environmental Capacity for Winter Sports - Mt. Hood Planning Unit. U.S. Forest Service.

#### Mapping and Special Reports

Geologic Mapping, USFS

Soils Mapping, SCS and USFS

Vegetative Mapping, USFS and PNW Forest & Range Experiment Station

Recreation Features, Interagency Team

Airshed and Thermal Area, Interagency Team

Fire History, Interagency Team

Land Ownership, Interagency Team

USFS Stream Classifications, USFS

Composite Land Suitability Map, Interagency Team

Specific Suitability Maps:

Water Quality

Water Quantity



Fire Hazard

Visual - Scenic Quality

Development (residential and commercial)

Wildlife, Winter Range and Ecotones

Recreation Opportunities, Developed and Dispersed

Snow Activities, Downhill Skiing, Snowmobile, Snowplay, Mountaineering

# EXHIBIT F

## AD HOC TECHNICAL REVIEWS OF PROPOSED PROJECTS IN THE MT. HOOD PLANNING UNIT

<u>Name</u>	<u>Date</u>	<u>Initiating Agency</u>
Warm Springs Interchange	May 1973	State Dept of Transportation
Winterwood Condominium De- velopment (Government Camp)	June 1973	Clackamas County
Government Camp Sewage Treatment Plant Improvement and Expansion	July 1973	Dept of Environmental Quality
Texas Chairlift - Mill Meadows	July 1973	USFS
Cedar Ridge Planned Unit Develop- ment - Brightwood	November 1973	Clackamas County
Mt. View Ridge Development (Lolo Pass)	February 1974	Clackamas County
Rim on Hood River Planned Unit Development	July 1974	Hood River County
Mt. Hood Loop Water District	November 1974	Metropolitan Boundry Commission
Timberline Lodge, 30 Year Plan	October 1974	USFS
Bowman - Sherfy Commercial De- velopment	March 1975	Clackamas County
Carl Bright Conditional Use Golf Course, Salmon River View Estates	July 1975	Clackamas County
Proposed Zoning: Firwood - Cherryville	October 1975	Clackamas County



## EXHIBIT G

### ENVIRONMENTAL CAPACITY APPROACH AND REPORT ABSTRACTS

"It is obvious that to crowd excessive numbers of people and houses into the (Mt. Hood) area would create problems of over-using the available resources . . . . the question is how much development and how many people, cars, new commercial and recreational facilities can be added to the Mt. Hood area, still maintaining the quality and standards of environment which are presently here?"

Preliminary Plan - Mt. Hood Community  
Clackamas County (August 1973)

Concern about the crowding and creeping deterioration of the Mt. Hood environment and the need for a managed growth strategy was recognized by the Clackamas County Community Plan for the Highway 26 Corridor. They also recognized that an "environmental carrying capacity" must be determined and implemented throughout the area on public and private lands. The Mt. Hood Interagency Planning Team, under the direction of its Executive Board, integrated the concept and principles of carrying capacity as the heart of the overall planning process.

The term "environmental capacity" is best described as the ability of an area to accommodate human development, while sustaining its character and environmental values. In the Mt. Hood area, the natural environment is of paramount importance and forms the basis for its long term management. The task of management agencies is to reflect this objective in determining the uses, intensity of use, the acceptable degree of impact and the distribution of residents and visitors appropriate to the area. These factors are important in assessing the maintenance costs required to improve conditions or to increase capacity without risk of natural or aesthetic values. They are also the basis for testing the performance of significant development projects and for guiding economic growth and public works investment.

The central questions of environmental capacity are "what," "where" and "how much." Once it is established which lands are to be used for what purpose, the question of use. The following chart illustrates the planning team's approach in meeting these determinations.

(1) DATA COLLECTION AND SYNTHESIS

- . Resource and land use inventory
- . Review existing plans, programs and policies
- . Determine land suitabilities.

(2) ANALYSIS AND PRELIMINARY ASSESSMENT

- . Establish public goals and priorities
- . Identify alternative futures
- . Measure constraint factors and limits
- . Develop alternative plans and impacts.

(3) DECISION ON PLAN AND ENVIRONMENTAL CAPACITY

- . Publish draft environmental statement
- . Public hearings and agency review
- . Reevaluate and recommend design population
- . Member agencies decide on interagency plan
- . Develop common ordinances and growth policies
- . Implement and monitor.

Because the concept is somewhat variable, it should be recognized that carrying capacity is not a single fixed number. Emphasis should be given to identifying important resource limits and environmental factors as they interact to restrain growth and its associated spinoffs.

In March 1975, the planning team formed a committee comprised of specialists from various governmental agencies and undertook the assignment of estimating the capacity of a dozen isolated constraint factors as they relate to the Mt. Hood Planning Unit and its ability to support increasing use and population.

Decisions have now been made on the growth patterns in the private community based in part on this analysis. In the future, this analysis will be used and updated in evaluating specific projects and activities. A key use will be the identification of limiting factors on carrying capacity and other project design constraints.

The elements of one carrying capacity analysis that were considered most significant and examined by the committee, together with their estimated population limits for the entire Planning Unit are summarized in Figure and the narrative which follows it.



1. Highway System
  - a. Present design/Highway 26: 9-10,000 residents per day and 220-3200 visitors per day.
  - b. Projected four lane Highway 26: 40,000 residents per day and 3600-5300 visitors per day.
  - c. Present design/Highway 35: 4000 residents per day and 1400-1700 visitors per day.
2. Available Land
  - a. For development on subsurface sewage: 19-21,000 residents on private lands.
  - b. For development on sanitary sewers: 119,000 residents on private land.
3. Available Water.
  - a. Domestic water supplies presently support 7060 seasonal and year round residents.
  - b. Groundwater supplies could support 68,000 residents with less than four percent reduction in surface flows and no change from present irrigation needs.
  - c. Surface supplies appear limited without additional storage facilities.
4. Water Quality
  - a. Uses and activities within the Planning Unit will not be allowed to degrade the existing high water quality.
  - b. Unless economic costs of meeting and maintaining this level prove more restrictive, interplay of other constraints would govern.
5. Wildlife Diversity
  - a. Low of 1640 and high of 4110 additional population.
  - b. Total of four square miles of additional development.
6. Scenic Quality
  - a. Present scenic quality limits of 16,600 residents on private lands.
  - b. Restoration of some areas may raise this limit while poorly designed development or visual additions could lower the capacity.

7. Public Recreation

- a. Present facilities and areas can support 24,500 summer visitors per day and 31,500 winter visitors per day.
- b. Additional capacity could be provided with new facilities and maintenance funding.

8. Regional Allocation and Perspective

- a. Year 2000 prospects: a low of 13,600 residents, up to a high of 20,500 residents.

9. Air Quality

- a. Other factors appear more restrictive due to weather dispersal patterns.
- b. Tentative upper limits of 66,000 residents on private lands without finalized air quality standards.

10. Energy Consumption

- a. Present traffic and housing patterns could consume  $450.240 \times 10^9$  BTUs of heat energy equivalents per year.
- b. Present plans and zoning have a projected demand for eight times as much energy consumption.
- c. A full four lane facility on Highway 26 at capacity could mean 14 million gallons of gasoline of  $1686.8 \times 10^9$  BTUs consumed per year.

11. Public Services

- a. Present elementary school facilities and on-site design expansion potential could support 9700 residents on private lands.
- b. Calculations for police, fire protection, etc. were not completed.

12. Public Attitudes and Opinions

- a. Based on public response, the two "Futures" most preferred would support 13-25,000 residents on private lands.
- b. The two "Futures" least preferred proposed 37-66,000 residents on private lands.
- c. Based on public response to the Draft Environmental Statement, an overall pattern begins to emerge with some definite reference points. Priorities for capital improvements or expenditures are very clear and different population objectives can be easily tested. It is a useful guide for an area like Mt. Hood where such a wide competition of interests are encountered and lands are suitable for a variety of purposes.



This material is the product of special carrying capacity studies completed in the preparation of the Mt. Hood Interagency Plan. The research team used data and information gained from previous studies, conducted original research where necessary and estimated the capacity of a dozen isolated constraint factors related to Mt. Hood and its ability to support increasing use and population. The purpose of this report is to present findings in a form usable as a resource and planning guide for decision making rather than selecting "optimum" of recommended level of population, or its distribution within the Planning Unit. This is expected to emerge from the interaction of government critique, citizen feedback and interagency decision making as the process of Environmental Assessment unwinds toward an adopted, overall Mt. Hood Plan.

With each abstract presented here, there is a brief explanation of the scope, method, sources, terms and controlling assumptions. Primary findings and estimates are also presented. For more depth and interpretation, interested parties should contact the Mt. Hood National Forest or other Planning Team members.

#### MAJOR CAPACITY ELEMENTS

1. Highway System
2. Available Land
3. Available Water
4. Water Quality
5. Wildlife Diversity
6. Scenic Quality
7. Public Recreation
8. Regional Allocation & Perspective
9. Air Quality
10. Energy Consumption
11. Public Services
12. Public Attitudes & Opinions

## MT. HOOD PLANNING UNIT

### ELEMENT. Highway System

### AGENCY. State Department of Transportation

ABSTRACT/SUMMARY. This element estimates the capacity of the existing highway system (Mt. Hood Loop: Highways 26 and 35) and a capacity for an expanded four lane Highway 26, Alder Creek to the Warm Springs junction. Allocations of capacity by highway user type (i.e. through, recreational, residential and local traffic trips) were also computed. The analysis was prepared by the State Department of Transportation using local average daily traffic data (1975), statewide traffic demand projections and information from two roadside interviews (midweek, summer 1972) regarding highway user origins and destinations. Major findings show segments of the present highway at or very near capacity and a maximum capacity of 12,000-13,000 residential units within the westside corridor given a full four lane facility on Highway 26. The potential for reducing demand for autos on the highway system and making more capacity available for residential or recreational usage with increased mass transit was not a part of this initial assessment.

### TERMS DEFINED

ADT. Average daily traffic, based on annual traffic data by highway segment.

Trip. A two way vehicular trip, e.g. from home to school and back.

Residential. Home connected vehicle trips originating within the Planning Unit, but traveling in and out of the Planning Unit.

Recreational. Vehicle trips originating outside the Planning Unit but attracted by recreational facilities within the Planning Unit.

Local. Vehicle trips circulating internally within the Planning Unit, i.e. from Alder Creek to Wildwood and back to Alder Creek.

### CONTROL FACTORS

- . Displacement of autos on highway by bus -- 12-14 autos with full bus ridership.
- . Conversion of residential trips into dwelling units -- 1.5-1.7 trips per unit, reflecting seasonal occupancy patterns within the Planning Unit.
- . Persons/Automobile -- 2.8.
- . Conversion of dwelling units into population (seasonal and permanent) -- 3.3 persons per residential unit at capacity.



## MT. HOOD PLANNING UNIT

ELEMENT: Available Land

AGENCY: Clackamas & Hood River Counties

ABSTRACT/SUMMARY: The available land component identifies the amount of acreage within the planning unit suitable for developed sites and for varying levels of development feasibility. The aim of this assessment was to separate out the prime developable land, that is, land which can be developed at least environmental cost and yet be considered realistically "available". A map screening technique was used to outline (1) unsuitable development areas or lands with major constraints of natural suitability (e.g., floodplains, excessive slopes) and restricted use (e.g., Mt. Hood Wilderness, domestic watersheds) and (2) suitable areas for developed sites according to five levels of feasibility for development based on road access, utility link-up, building siting, and sewage disposal potential. A breakdown was made according to public or private lands. Criteria for suitability and feasibility constraints were compiled from existing land use policy (e.g., State of Oregon subsurface disposal requirements) and practical understanding of area conditions. The analysis was prepared by the Clackamas and Hood River planning staffs, with assistance from the Clackamas County Public Works (soils capability) and U. S. Forest Service (planimeter acreage measurements). The estimates for available land were then used to measure private land capacities in terms of residential development, either on septic tanks or sanitary sewers. For the private lands most readily available and suitable for development, gross capacity yields were as follows:

	Housing Units	
	<u>On Septics</u>	<u>On Sewers</u>
Clackamas County	2,700-3,400	22,000
Hood River County	3,150	14,400

The total prime developable land, whether public or private, was estimated to be 15,200 acres. Of this, approximately 7,200 acres were privately-owned and under Hood River and Clackamas County jurisdiction. Alternative uses for these lands, such as agricultural or timber production, were not a part of this analysis.

### SOURCES:

Mapping - Composite Suitability, Geology, Land Ownership, Existing Land Use, Subdivided and Leased Lands (Mt. Hood Interagency Inventory File - 1974).

Planning Policy - "Preliminary Plan - Mt. Hood Community" (Clackamas County), "Clackamas County Comprehensive Plan", "Hood River County Comprehensive Plan", Federal Multiple Use Plans.

TERMS DEFINED:

Highest Development Feasibility

- 1 - Includes areas of low to moderate slopes, well-drained soils, suitability for building sites and subsurface disposal systems, reasonable access and utility (water, sewer) link-up potential.
- 2 - Includes areas of reasonable access and utility link-up potential, suitability for building sites, but soils are more rapidly drained and somewhat limited for subsurface disposal.

Moderate Development Feasibility

- 3 - Includes areas with reasonable access and utility link-up potential, but low suitability for building sites and subsurface disposal due to drainage or slope conditions.
- 4 - Includes areas with suitability for building sites and subsurface disposal, but restricted access and utility link-up potential.

Lowest Development Feasibility

- 5 - Includes areas with low suitability for building sites/subsurface disposal and restricted access/utility link-up potential.

Unsuitable/Restricted

- Includes areas above 6000' elevation (timberline), 100 year floodplains, wetlands and marshes, surface water features, 25% slopes or greater, geologic hazard areas, major power easements, domestic watersheds, and classified wilderness.

CONTROL FACTORS:

- Capacity for residential development predominantly on septic systems calculated @  $\frac{1}{2}$  to 2 acres per unit, feasibility rating of 1; @ 1 to 5 acres per unit, feasibility rating of 2. Areas with feasibility ratings 3 through 5 were not considered.
- Capacity for residential development predominantly on sanitary sewers calculated @ 4 units per acre, feasibility rating of 1 or 2; @ 2 units per acre, feasibility rating of 3. Areas with feasibility ratings 4 & 5 were not considered.
- Capacity of individual housing units (seasonal and/or permanent) calculated @ 3.3 persons per unit.



FINDINGS/GENERAL ESTIMATES: The following tables show the amount of land within the planning unit in terms of suitability and feasibility for residential development in acres. Private land capacity estimates shown in the summary were derived using the preceding control factors.\*

TOTAL PLANNING UNIT

DEVELOPMENT FEASIBILITY RATING	WEST APPROACH	WEST SLOPE	ACRES	EAST SLOPE	NORTH APPROACH	TOTALS
A. Highest	3,353	4,735		2,809	4,287	15,184
B. Moderate	7,949	7,715		6,785	1,993	24,442
C. Lowest	4,774	4,587		1,829	- - -	11,190
TOTALS	16,076	17,037		11,423	6,280	50,816
D. Unsuitable/Restricted	15,508	46,321		19,193	4,127	85,149
E. Wilderness &/or above 6,000 foot elevation	- -	5,131		15,201	- - -	20,332
PLANNING UNIT TOTALS	31,584	63,358		45,817	10,407	156,297

PRIVATE LAND PORTION

DEVELOPMENT FEASIBILITY RATING	WEST APPROACH	WEST SLOPE	ACRES	EAST SLOPE	NORTH APPROACH	TOTALS
A. Highest						
1.	2,309	295		320	2,716	5,640
2.	804	100		- -	701	1,605
B. Moderate						
3.	4,178	- -		- -	1,923	6,101
4.	1,516	70		- -	- -	1,586
C. Lowest						
5.	2,779	- - -		- - -	- - -	2,779
TOTALS	11,586	465		320	5,340	17,711
Unsuitable/Restricted	7,939	705		- - -	2,185	10,829
TOTAL PRIVATE	19,525	1,170		320	7,525	28,540



## MT. HOOD PLANNING UNIT

### ELEMENT. Available Water

AGENCY. State Wildlife Commission and Department of Water Resources

ABSTRACT/SUMMARY. The available water analysis examines the limits of domestic water supply in relation to maintenance of favorable stream conditions for fish life and recreation use, current allocation of flows to outstanding water rights and the effect of groundwater withdrawals on surface supply. Groundwater and surface supplies were examined separately with data provided by the State Engineer's Office and Oregon State Wildlife Commission. Major surface supply limitations include prior allocations for power purposes on both the Sandy (PGE) and East Fork Hood River (PP&L) drainages. In addition, deficits of flow during dry season months exist for productive fish habitat. Groundwater supplies are controlled by extent and yield capabilities of existing aquifers within the Planning Unit and their recharge ability. Although the analysis suggests that increased surface water capacity (perhaps through upstream reservoir facilities) is needed to support much additional growth, available groundwater is not nearly as restrictive. It was estimated the aquifer recharge ability of the westside corridor could support a population of 100,000. A more acceptable balance however, resulting in less than a four percent reduction of surface flows, would be approximately 60,000 persons. A population of 8000 could be supported in upper Hood River Valley with a three percent surface loss and no change from current irrigation needs. If irrigation requirements are increased (which appears likely), Hood River County's population capacity in terms of groundwater, would be reduced.

### SOURCES

- State Engineer's Office
- State Water Resources Board
- State Wildlife Commission
- State Department of Environmental Quality Draft Management Plans for the Sandy and Hood River Drainages

## MT. HOOD PLANNING UNIT

### ELEMENT. Water Quality

AGENCY. State Department of Environmental Quality, Mt. Hood Planning Team

ABSTRACT/SUMMARY. The aim of the water quality element is to consider the limits to growth and development as imposed by pollution control regulations and present water quality standards. The essential policy with respect to existing water quality within the Planning Unit is one of nondegradation. This means assimilative capacity concepts based on stream dilution ratios are not generally applicable; and additional development on sewers will be expensive. Both point (e.g. sewage works) and nonpoint (agriculture, timber harvesting) sources of pollution must be considered. The State Department of Environmental Quality is responsible for water quality management with the Sandy and Hood River drainage basins and adopting programs to prevent their degradation. In addition to state water quality management policies, a sewage collection feasibility study (with cost analysis) by Stevens, Thompson and Runyan, Inc. and a linear computer program output (testing effects of different land use patterns upon water quality objectives) will supplement the Environmental Statement. Capacity limits in terms of water quality, particularly from an economic/cost standpoint, should then be more definitive.

### SOURCES

- . State Department of Environmental Quality, Management Plans for Sandy and Hood River Drainages, 1976.
- . Clackamas County Alder Creek/Rhododendron Sanitary Sewage Service Study, 1975-76.



## MT. HOOD PLANNING UNIT

### ELEMENT. Wildlife Diversity

AGENCY. U.S. Forest Service and Clackamas/Hood River Counties

ABSTRACT/SUMMARY. The most outstanding biological feature about Mt. Hood and vicinity is the high species diversity or variety among its plant and animal communities. This element reviews the amount of development that could occur while substantially preserving the high level of wildlife and habitat diversity. Measurements of habitat change resulting from encroachment of development were compared to habitat types and sensitivity, based on factors of winter range, fisheries, wetland occurrence, unusual species and vegetative recovery. Threshold margins were estimated and translated into the amount of allowable development, assuming a density greater than five dwellings per square mile (the level at which development impact in terms of wildlife harassment becomes apparent). The analysis was prepared by the Forest Service's Wildlife Biologist, with relevant land use information provided by Clackamas and Hood River Counties. Major findings show an average habitat alteration of 11.3 percent as a result of development (private communities, low density residential, public campgrounds, roads, etc) and a total of 5.3 square miles of additional allowable development within the Planning Unit. The public lands, where habitat sensitivity is generally higher and overall development impact is lower, received 1.2 square miles for additional roads or recreational development. Additional development to be allowed in private portions was estimated at 1.65 square miles in Clackamas County and 2.43 square miles in Hood River County. Urban level densities (greater than 1000-2000 people per square mile) were considered too extreme if habitat values and native wildlife, as known today, are to be maintained. To reduce the rate of decline in wildlife values, additional development should concentrate in areas already appreciably impacted (e.g. Welches), minimizing encroachment into undisturbed and sparsely built up areas. More work is necessary on capacity estimates for timber harvest and agriculture in relation to wildlife retention within the Planning Unit.

### SOURCES

- . Salda, R. 1975. Vegetation Structure and Breeding Bird Diversity. Proceedings of the Symposium in Range Habitats for Nongame Birds. USDA, Forest Service. General Technical Report WO-1;59-30.
- . MacArthur, R., et al. 1966. On the Relation Between Habitat Selection and Species Diversity. The American Naturalist. 199(913); 319-331.
- . See also: Mt. Hood National Forest Wildlife Biology files for extensive reference bibliography.
- . Mapping: Land Use, Ecotones and Winter Range (Mt. Hood Interagency file).

TERMS. Free ranging dogs: To effectively maintain any semblance of the present wildlife density, free ranging domestic dogs must be controlled in the ex-

isting winter range area (see Wildlife Suitability Map) where densities presently exceed greater than five free ranging dogs per visit, summer and winter. Dogs must also be controlled on the many miles of recreational hiking trails within the Planning Unit.

FINDINGS/GENERAL ESTIMATES. The following table shows the amount of additional residential development on private lands at densities considered reasonable and yet sufficiently low to protect the existing high wildlife diversity. In addition, total alteration of wildlife diversity (compared to a "wild" or predevelopment character) and average habitat sensitivity levels are shown for all lands within the Planning Unit.

<u>Description</u>	<u>Acres Examined</u>	<u>Average % Alteration</u>	<u>Average Habitat Sensitivity Index</u>	<u>Allowable Sq.Mi of Additional Res.Dev.</u>	<u>Resident Population Conversion (Preferred)</u>	<u>Resident Population Conversion (Maximum)</u>
West Approach	8700	15.8	7.5	1.20	480-1200	2400
West Slope*	10000	9.1	10.5	.45	180-450	900
East Slope	4700	7.1	11.6	.76	300-760	1520
North Approach	7100	20.4	10.6	1.67	680-1700	3400
Total Planning Unit	30,500	11.3	10.1	4.08	1640-4110	8220

\* Includes Faubion, Rhododendron, Leased summer homes area and Government Camp.

\*\* While this outer limit means even further decline in species number, impact on diversity may be absorbed, provided: (1) new development is concentrated in areas already severely altered; (2) wetlands, winter range, river fisheries, important ecotonal areas and key wildlife corridors remain undisturbed and are buffered from development; (3) the existing free ranging dog populations are reduced and controlled; and (4) seasonal residential occupancy patterns remain constant. Since the likelihood of totally achieving these conditions appears too idealistic, i.e. requiring stronger and more unpopular regulation than is now in effect, the most comfortable estimate of carrying capacity in terms of wildlife diversity is best represented by the lower level growth range.



## MT. HOOD PLANNING UNIT

### ELEMENT. Scenic Quality

AGENCY. U.S. Forest Service and Clackamas County Planning Department

ABSTRACT/SUMMARY. The scenic quality element examines the question of the amount of residential development supportable within the Planning Unit without excessively degrading the visual quality and character of the Mt. Hood area. An inherent premise is that the scenic landscape is a basic resource and natural features (as opposed to most manmade features) are the best measure of scenic beauty. Utilizing the land suitability data, known density and land use characteristics, and the visual quality analysis for the Mt. Hood Planning Unit, scenic quality limits were identified and arrayed by geographic area. These limits were subsequently converted to the amount of permissible development. The analysis was prepared by the Landscape Architecture staff of the U.S. Forest Service, with assistance from the Clackamas County planning staff. Results of the study show the Planning Unit is capable of supporting approximately 5000 total dwelling units without significantly affecting natural scenic qualities. The analysis assumes future development would be of a quality design and site development would be sensitive to natural features. Restoration of areas already adversely affected from a visual standpoint would help to raise the present scenic limits; conversely, poorly designed development projects or the introduction of other adverse visual impacts such as gravel pits, logging scars, ect. would tend to lower the overall scenic capacity.

### SOURCES

- . Existing Density Data, Clackamas County
- . Typical Land Coverage and Land Use Characteristics. The Community Builders Handbook, Community Builders Council of the Urban Land Institute, Washington, D.C., 1968 and Land Use Intensity Data Sheet 19, Land Planning Bulletin #3, HUD, Federal Housing Administration.
- . Concepts of Landscape Management. National Forest Landscape Management. Vol. 1, USDA, Handbook #434, and Vol 2, USDA Handbook #462.
- . Landscape Visual Factors. USFS, The Visual Analysis System, R1, Missoula.

### TERMS DEFINED

#### Natural Visual Variety

1. Class A Lands. Distinctive areas where features of landform, vegetative patterns, water forms and rock formations are of unusual or outstanding visual quality. They are usually not common to the landscape.

2. Class B Lands -- areas where features contain variety in form, line, color, and texture or combinations thereof but which tend to be common throughout the landscape and are not outstanding in visual quality.
3. Class C Lands -- areas whose features have minimal change in form, line, color, or texture. Includes all areas not found under classes A and B.

Natural Features Index -- total point score attributed to natural features within a given landscape segment divided by the number of acres.

Net Features Index -- total natural features score minus total score attributed to manmade features within a given landscape segment and divided by the number of acres.

Reserve Margin Index -- difference between net index and permissible scenic reduction per segment, as measured from the natural index score. Converts to a point score, which in turn, yields acres of development at a given density.

#### CONTROL FACTORS:

- Permissible Scenic Quality Reduction per Landscape Segment.

Variety class A - 10%  
 Variety class B - 20%  
 Variety class C - 30%

- Conversion of Score Reduction Reserve to Acres of Development.

Design PUD Model of 50 acres @ 2 units/acre =	road cuts/fills	70
	land coverage	100
	commercial/utility	6
	general	50
	TOTAL SCORE	226

FINDINGS/GENERAL ESTIMATES: The following table displays the total amount of residential PUD development in acres or equivalent scenic impact permissible without lowering overall scenic quality. While the total number of allowable units at maximum development remains constant, on-site density factors may vary.

<u>AREA</u>	<u>EXISTING AV. SCENIC REDUCTION</u>	<u>RESERVE MARGIN INDEX</u>	<u>POTENTIAL ACRES OF HOUSING ALLOWABLE @ VARIABLE DENSITIES (UNITS/AC.)</u>			
			<u>4/AC</u>	<u>2/AC</u>	<u>1/AC</u>	<u>0.5/AC</u>
West Approach	23%	0.43	645	1,289	2,578	5,156
West Slope	18%	0.27	157	314	628	1,256
East Slope	3%	0.17	314	628	1,256	2,512
North Approach	14%	0.19	145	291	582	1,164
TOTAL PLANNING UNIT	18%	0.26	1,261	2,522	5,044	10,088



## MT. HOOD PLANNING UNIT

ELEMENT: Public Recreation

AGENCY: U. S. Forest Service, Zigzag & Parkdale Ranger Districts

ABSTRACT/SUMMARY: The recreation element of the environmental capacity analysis deals with the problem of estimating how many recreation visitors can be accommodated within the areas and facilities presently in use and without degrading the environment or quality of experience. The analysis was done by Forest Service recreation staff and people knowledgeable of present use or activity levels and the kinds of environmental/facility stresses currently being experienced. Some areas of the Planning Unit, such as parts of the Zigzag mountain roadless area and Paradise Park section of the Pacific Crest Trail, are already overloaded, while others have room to absorb additional recreation use.

### TERMS DEFINED:

"Present Use" - the highest visitation figure in numbers of people (Persons @ one time) experienced during the past two years.

"Present Capacity" - the number of people that can be accommodated by existing developed facilities or within present dispersed recreation areas without damaging the resources and facilities.

"Summer" - a 30 day period in June/July/August of highest or peak use.

"Winter" - a 30 day period in December/January/February of highest or peak use.

"Developed Recreation" - areas with developed facilities in place, designed to accommodate larger volumes of users, including picnic sites, campgrounds, parking and ski lift facilities, day lodge, etc. For ski areas, day-time figures only are shown.

"Dispersed Recreation" - areas with or without a road access system, but having no significant developed facilities other than, for example, a trailhead. Capacity estimates for these areas are based on the number of available campsites associated with the existing trail system.

### CONTROL FACTORS:

Camping or picnic site maximum design -- 5 persons per unit.

Actual use of camping or picnic site based on available parking -- one space per unit @ 3.2 persons per automobile.

One bus -- 5 auto parking spaces or 40 persons.

## FINDINGS/GENERAL ESTIMATES

The following table shows the capacity estimates in numbers of people for public recreation areas and facilities currently in use within the Mt. Hood Planning Unit.

### Dispersed Areas

	<u>Present Use</u>		<u>Present Capacity</u>	
	<u>Summer</u>	<u>Winter</u>	<u>Summer</u>	<u>Winter</u>
Hood River	1955	890	2445	700
Clackamas	1218	1015	2545	1000
Subtotal	3173	1905	4990	1700

### Developed Sites

Hood River	1300	4700	1358	3750
Clackamas	10397	7000	15627	7800
Subtotal	11727	11700	16985	11550
PLANNING UNIT TOTALS	14,900	13,605	24,520	13,250

Note: Use figures are for persons at one time (PAOT). Motorists driving for pleasure are not included in these estimates.



ELEMENT: Regional Allocation & Perspective

AGENCY: Columbia Region Association of Governments (CRAG)

ABSTRACT/SUMMARY: This element examines the question of residential growth in the planning unit in relation to regional population prospects and land needs. It describes the possible housing and population levels that may be reached by year 2000, based largely on two reliable evaluations of regional growth prospects as they would affect the Mt. Hood area. These evaluations, developed separately by CRAG and the Center for Population Research and Census (CPRC) at Portland State University, helped to establish regional control references for specific projections at the local planning unit level. The analysis was prepared by the CRAG staff in cooperation with Clackamas and Hood River County planning staffs, using the regional projections, 1970 county-wide and area-related census data, and 1974-75 estimates of population and housing stock within the planning unit. While not definitive measurements of carrying capacity, recent population projections based on regional market factors and preliminary efforts to identify broad land use needs from a region-wide perspective serve as reasonable parameters for discussion of Mt. Hood's carrying capacity. Primary findings suggest a total resident population (seasonal and year-round) for the planning unit of about 13,600 if CRAG projections prove accurate and a total resident population of 20,500 if CPRC projections prove accurate. Clackamas County's share of the higher projection level could be absorbed within 1.5 to 3.0 square miles of designated urban land (in addition to Government Camp) and maintain an overall rural character.

REFERENCES:

CRAG - Columbia Region Association of Governments, Illustrative Projections, Staff Working Paper #2, 1973.

CPRC - Center for Population Research & Census, PSU, Population Projections, Oregon Administrative District No. 2, March, 1975.

1970 Census of Population & Housing, U. S. Department of Commerce.

CONTROL FACTORS:

- Permanent Population/Housing Unit Ratio:

Mt. Hood CCD (CT243) = 1.67 in 1970 (U.S. Census)  
Hood River Co. ED 23, 24, 25, 26, = 1.50 in 1970 (U. S. Census)  
Mt. Hood Planning Unit - Clackamas County Portion = 1.06 in 1975\*  
Mt. Hood Planning Unit - Hood River Portion = 1.50 in 1975\*

- Percent of Housing Stock Occupied Year-Round:

Mt. Hood CCD (CT243) = 61% in 1970 (U.S. Census)  
Hood River Co. ED 23,24,25,26 = 53% in 1970 (U. S. Census)  
Mt. Hood Planning Unit - Clackamas Portion = 53% in 1975\*  
Mt. Hood Planning Unit - Hood River Portion = 43% in 1975\*

\* Interagency Estimates

# FINDINGS/GENERAL ESTIMATES

The following table shows housing and population capacities for the Mt. Hood Planning Unit in relation to projected regional market and population conditions:

	Existing Housing 1975 2/	Total Housing Needs & Capacities		Total Population 1/	
		Projected Housing 1980	Estimated Housing Capacity 4/	Existing 1975	Projected 1980
Clackamas County Portion					
CPRC	2440	3775	6383-High		19800 5/
CPRC	2440	3293 5/	5620-Med	6400	8553
		4401 5/	5365-Low	6400	11448
Hood River County Portion	280	320		660	1187

CPRC - Center for Population and Census, Portland State University  
 CRAG - Columbia Region Association of Governments

- 1/ Seasonal and year round, combined.  
 2/ Based on Mt. Hood Interagency Team estimates made in 1974.  
 3/ Based on fair proportion of regional projections developed by CRAG and CPRC.  
 4/ Based on CRAG's "focused growth" regional sketch planning and land area measurements.  
 "High" - overall density averages two acres per unit.  
 "Med" - overall density averages five acres per unit.  
 "Low" - overall density averages ten acres per unit.  
 5/ CRAG projections revised in May 1977 based on General Planning Data and Projection for Population Employment and Land Use adopted by the CRAG Board of Directors in January 1977.

NOTE: The above densities apply to rural classified areas.



## MT. HOOD PLANNING UNIT

ELEMENT: Air Quality

AGENCY: Mt. Hood Planning Team and State Department of Environmental Quality

ABSTRACT/SUMMARY: The original intent of the air quality element was to deal with the capacity of the planning unit to carry emissions without producing conditions which exceed present air quality standards. It is impossible at this point, however, to estimate how much actual air pollution is occurring as a result of interaction between current emission levels, weather and topography. This would require a comprehensive air flow modeling process, a task too complex and time-consuming for the present interagency schedule. In absence of such a baseline, emissions generated by major sources of pollution within the planning unit were calculated for different levels of use, including estimates for the present activity level. Based on advice from State air quality specialists, it is quite certain other factors will prove more limiting than air quality. The complex of wind patterns, terrain, etc., create a situation in the planning unit where a fairly large increase in emissions can be absorbed without significantly degrading ambient air quality. The planning team will recommend a more sophisticated analysis be undertaken by the State Department of Environmental Quality (DEQ) in the Mt. Hood area, treating it as a Region where a very low level of emissions would be allowed

### SOURCES:

State Department of Environmental Quality  
State Department of Transportation  
Federal Environmental Protection Agency  
Zigzag & Parkdale Ranger Districts.

### CONTROL FACTORS:

#### - Auto Emissions (1975 grams/vehicle mile)

Particulate	SO <sub>x</sub>	NO <sub>x</sub>	CO	HC
.58	.20	5.0	50	6.5

#### - Slash Emissions

1. Clearcut @ 70 tons/acre; partial cut @ 15 tons/acre.

2. Particulate	NO <sub>x</sub>	CO
9 lbs/ton	2 lbs/ton	65 lbs/ton

## CONTROL FACTORS (CON'T):

### - Furnace Emissions

#### 1. Fuel usage per capita

	1973 Mixture	New Construction Mixture
Oil	$0.146 \times 10^3$ gal/person/yr.	$0.0316 \times 10^3$ gal/person/year
Gas	$0.0117 \times 10^6$ ft <sup>3</sup> /person/year	$0.027 \times 10^6$ ft <sup>3</sup> /person/year

#### 2. Emission Factors:

	Particulate	SO <sub>x</sub>	NO <sub>x</sub>	CO	HC
Gas (lbs/10 <sup>6</sup> ft <sup>3</sup> )	19	0.6	80	20	8
Oil (lbs/10 <sup>3</sup> gal)	10	30.0	12	5	3

#### 3. Fireplaces - 0.26 lbs of particulate emission per hour of usage.

FINDINGS/GENERAL ESTIMATES: The following table indicates present emission levels within the planning unit for automobiles, slash burning, and home furnaces. Some projected outputs are also shown.

#### 1. Auto Exhaust Emissions

	Particulate	SO <sub>x</sub>	Tons/Year		CO	HC	Total
			NO <sub>x</sub>				
Highway 26 & 35 (1974)	22.6	7.8	195.6		1956.1	254.3	2436.4
Projected 4-lane Highway 26 @ capacity	128.8	44.4	1110.4		11103.5	1443.4	13830.4

#### 2. Slash Emissions (1974)

	Particulate	NO <sub>x</sub>	Tons/Year		CO	Total	
							✓
Clearcut	53.5	11.9		380.8		446.3	
Partial Cut	25.0	5.6		177.6		208.1	
Total	78.5	17.5		558.4		654.4	

#### 3. Furnace Emissions

	Particulate	SO <sub>x</sub>	Tons/Year		CO	HC	TOTAL
			NO <sub>x</sub>				
Existing Housing (2620) @ capacity	6.7	17.8	10.9		3.9	2.1	35.6
Projected Housing (18,200) @ capacity*	17.2	19.7	53.1		14.6	6.4	111.0

\*Based on Future #4 (See pages 31-33)



## MT. HOOD PLANNING UNIT

ELEMENT: Energy Consumption

AGENCY: Planning Team and State Department of Environmental Quality

ABSTRACT/SUMMARY: This element estimates the amounts of energy consumed by present traffic and housing patterns. Projected fuel consumption based on possible community and highway 26 expansion levels was also examined. The analysis was prepared by the Interagency Planning Team, with advisory assistance from State Department of Environmental Quality (DEQ). Consumption potentials for alternative land use strategies and plans will be shown as a part of the Environmental Statement, but an actual capacity estimate in terms of energy was not possible within the present schedule. A more sophisticated analysis identifying energy flow processes and requirements in relation to regional fuel priorities/prospects is needed, uncertain as that direction may be.

### SOURCES:

State Department of Environmental Quality  
Portland General Electric  
Bonneville Power Administration  
State Highway Division

### TERMS DEFINED:

BTU - British Thermal Unit, standardized unit of measurement for heat energy.

### CONTROL FACTORS:

Heating Oil: 142,000 BTUs/Gal.  
Gasoline: 144,000 BTUs/Gal.  
314 BTUs/KWH  
Average of 1000 KWH/Month/Residence  
Auto Consumption: One gallon/13.6 miles.

Housing: 60% heated by gas or oil.  
40% heated by electricity.

FINDINGS/GENERAL ESTIMATES: The following table displays the planning unit's fuel consumption in British Thermal Units (BTUs) under present and projected circumstances.

ENERGY CONSUMPTION AND PROJECTIONS

<u>GASOLINE:</u>	<u>THRU</u>	<u>ANNUAL GALLONS</u> <u>TRAFFIC TYPES</u>			<u>LOCAL</u>	<u>TOTAL</u> <u>GALLONS</u>	<u>TOTAL</u> <u>BTUs</u>
		<u>REC</u>	<u>RES</u>				
- Existing Highway 26 (Alder Creek to Warm Springs Interchange)	1,364,628	465,599	628,728		89,760	2,548,715	290.554x10 <sup>9</sup>
- Projected four-lane Highway 26 @ capacity	2,404,356	926,936	11,300,625		164,966	14,796,883	1686.844x10 <sup>9</sup>
<u>HEATING FUEL &amp; UTILITIES:</u>							
	<u>OIL OR GAS HEAT</u>	<u>ANNUAL BTUs</u>				<u>TOTAL BTUs</u>	
		<u>ELECTRIC HEAT</u>	<u>ELECTRIC UTILITIES</u>				
- Existing Housing Units (2620)	80.547x10 <sup>9</sup>	44.994x10 <sup>9</sup>	34.244x10 <sup>9</sup>			159.786x10 <sup>9</sup>	
- Projected Housing Units (27,500)* @ Capacity	577.893x10 <sup>9</sup>	416.934x10 <sup>9</sup>	330.660x10 <sup>9</sup>			1325.489x10 <sup>9</sup>	

\*Based on current plans & zoning @ saturation (i.e., Future #1)



ELEMENT: Public Services

AGENCY: Clackamas and Hood River County

ABSTRACT/SUMMARY: The ability of managing agencies to provide and maintain essential public services at an adequate level of quality is one measure of an area's capacity. This capacity can change over time as capital improvements planning is implemented and services become available in the area. This element should eventually examine the capacity of all major service systems within the planning unit, including the following:

- Schools
- Secondary Road System
- Snow Removal
- Water Delivery
- Sewage Disposal
- Fire Protection
- Police Protection
- Irrigation

One of these -- schools -- is isolated to demonstrate how the public service element may serve as a limiting factor. A more thorough review of present system design capabilities and the ability of local governments to upgrade and expand within financial/taxation constraints is expected as a part of the Environmental Statement.

SOURCES:

Welches and Parkdale Elementary Districts

CONTROL FACTORS:

- 1 elementary student per five houses/westside (excludes summer homes).
- 1 elementary student per two houses/eastside.
- Respective design capacities for Parkdale and Welches elementary schools of 305 students and 450 (with 4 new on-site classrooms) students.

FINDINGS/GENERAL ESTIMATES:

	Present Enrollment	Additional Design Capacity	Conversion To Additional Housing Capacity
Parkdale (I-6)	270	35	70
Welches (K-8)	300	150	750

## MT. HOOD PLANNING UNIT

ELEMENT: Public Attitudes and Opinions

AGENCY: Mt. Hood Interagency Planning Team

ABSTRACT/SUMMARY: Citizens, through government decision makers, interest groups, and as individuals, can affect (1) the importance given to various environmental factors, (2) the amount of revenue generated to provide public facilities, and (3) the political feasibility of any public action, all directly related to an area's carrying capacity. The intent of this element is to correlate respondent preferences on the Mt. Hood Planning Unit Futures to an estimate of the population levels associated with each Future. On the response form, respondents could check which Future they generally most preferred. Figure 1 illustrates the percentage of total respondents preferring each Future and the associated population levels. Because available housing is an important factor in determining population levels, respondent preferences on the housing element of each Future are also shown on Figure 1.

People were also asked on the response form to indicate a preference for each one of the elements of each Future. The following graphs (see Figure 2) indicate respondent preference by element and future in terms of most preferred and least preferred. These graphs are based on information contained in the Public Input Analysis-Mt. Hood Futures.

Figure 2 is provided because it was apparent from the analysis that, although most respondents checked a future they generally most preferred (see Figure 1), there was a "trading off" of preferences for individual elements of the Futures.

Public input is a continuous process for any planning effort; indicators of concerned citizen preference can be quantified and examined from a variety of approaches, including questionnaires, meetings on a formal and informal basis, advisory groups, and day-to-day contact with local citizens. Although the response was just a sampling of people concerned about the mountain area, the views expressed on the 'Futures' publication provides some valuable and current insight.

It should be recalled the purpose of the Futures publication was largely conceptual, that is, primarily concerned with character and the kind of image people would like to see maintained or achieved. An approximation of the population level associated with each future was estimated by measuring the allocations described within the booklet.

### SOURCES:

"Public Input Analysis-Mt. Hood Planning Unit Futures", Mary Moore, U. S. Forest Service, 1975.

"Mt. Hood Planning Unit Futures", Mt. Hood Planning Unit, 1975.

Staff working paper - determination of population levels by Future, (Mt. Hood Interagency file - 1975).



## TERMS DEFINED:

**Respondent** - Any individual, organization or agency which provided written comments on the Mt. Hood Planning Unit Futures.

**Public Input Analysis** - Systematic approach for capturing public comments on the Mt. Hood Futures. Public comment and opinion has been encouraged from everyone indicating any interest and/or concern for the area. Because the planning unit contains resources of National and regional interest, no specific geographic/demographic designations of populations having standing can be determined. Random sampling techniques and representational measurements are, therefore, not possible.

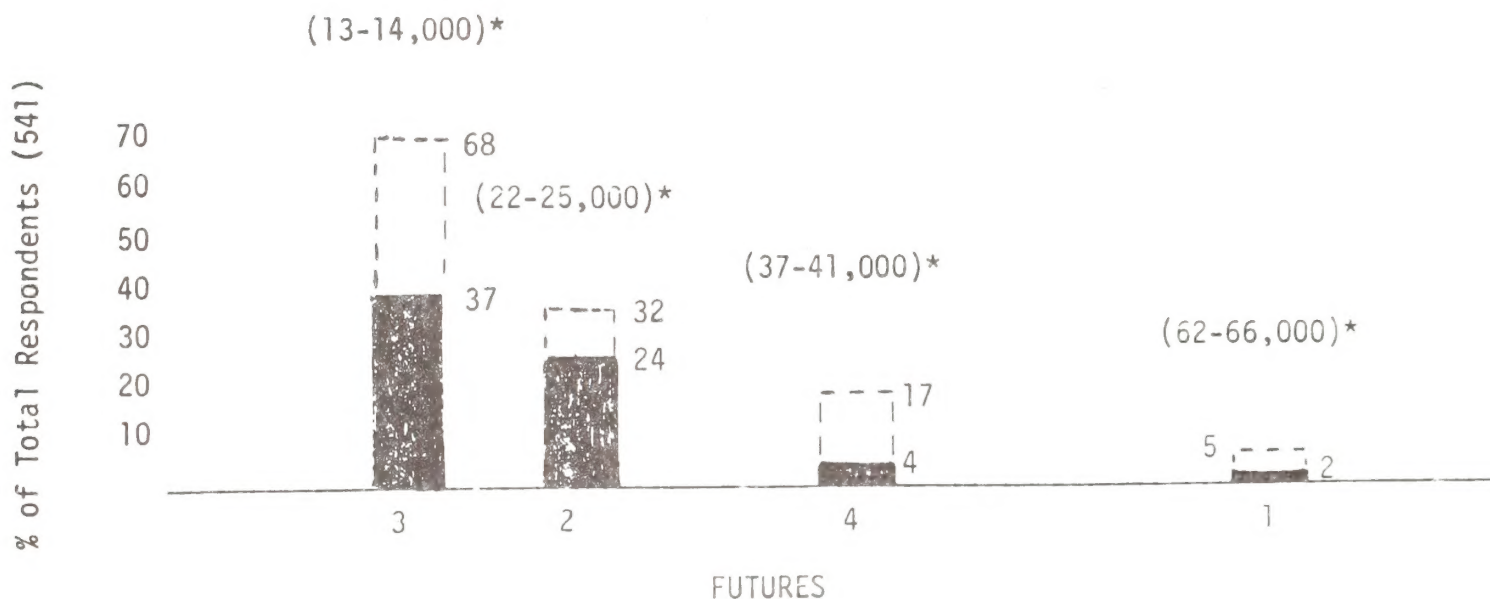
**Element** - The discussion of each Future was broken down into various factors such as Housing, Agriculture-Forestry, Transportation, etc., which are referred to as elements of the Futures.

**Control Factors** - Total number of "Futures" brochures distributed - 3,000.

Total number of responses returned - 541.

Assumptions which determined population levels for each Future.

FIGURE 1



Future Preferred



Housing Element - Future Most Preferred

\*

Associated Population Level per Future

Notes: Bars above 0 line indicate % of Respondents most preferring a Future; bars below 0 line indicate % of Respondents least preferring a Future.

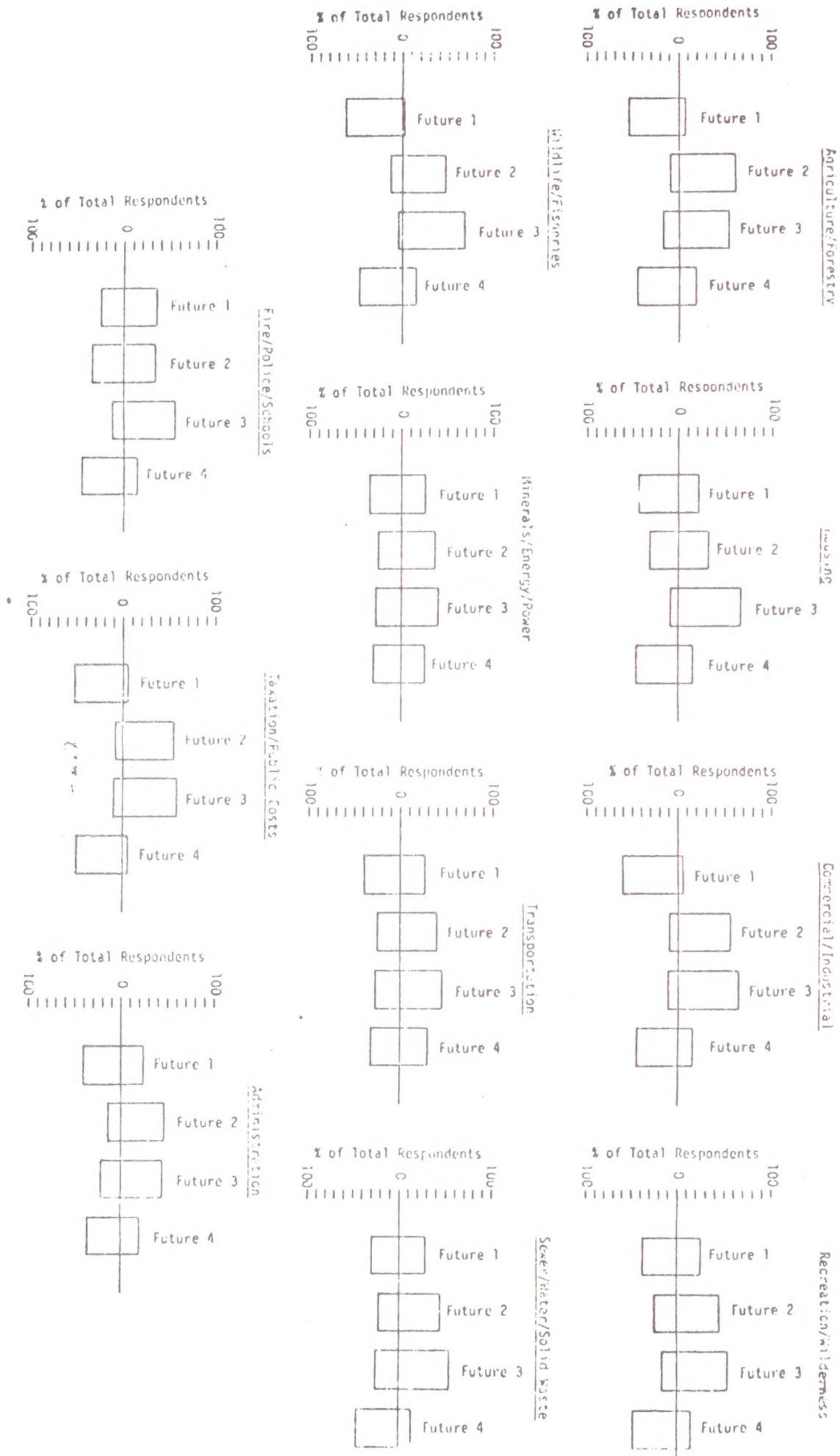


FIGURE 2



## MASS WASTING, GEOLOGIC HAZARDS AND GEOTHERMAL DEVELOPMENT

Mass wasting (weathering, disintegration and transport) of the geologic profile is a naturally occurring and constant process. It proceeds with varying rates and mechanisms, depending on rock type and condition and the transport agent involved. These processes may be accelerated (or retarded in the case of remedial treatment) by cultural activities such as road construction, timber harvest and general construction requiring excavation and slope loading. The hazard related to these processes depends upon cultural proximity and frequency of exposure in the case of land movement and on stream use in relation to turbidity, bedload and glacial dams. Timber production is affected regardless of exposure frequency in that the damage is to the soil resource and hence, regeneration capability.

Rockfalls. This process occurs through erosion of steep lava cliffs and results in the formation of talus deposits below. The hazard results from falling and rolling rock or debutting of talus slopes by road or general construction.

Landslides. This form of mass wasting occurs most frequently in the areas underlain by volcanic breccias and sediments or areas of thick, poorly drained soil profiles or soils developed on steep bedrock surfaces. Hazards are destruction of life and property downslope, loss of the soil profile and sediment contribution to adjacent stream drainages.

Rock and Ice Avalanches. Avalanching occurs most frequently on the steep cliffs and glaciers of Mt. Hood proper and the cliff areas formed by the resident lava flow rock units. The hazards are mostly to recreationists and recreation features such as trails, winter sports areas and high mountain roads.

Glacial Dams. This form of mass wasting occurs when glacier under-drainages are restricted by moraines or ice falls causing water impoundment beneath or along the glacier terminus. Torrential runoff occurs when the restriction breaches and causes severe stream and streamside damage below until the water slug dissipates. Streams most susceptible are those draining major glaciers on Mt. Hood. The hazard is to stream uses such as irrigation diversions, bridges and recreation structures.

Stream Bedload. Under extreme or rapid runoff conditions on the bedload transport of streams on the flanks of Mt. Hood reaches slurry conditions. Material deposited under normal runoff conditions is multiplied and stream capacity is exceeded. Characteristic streams where this process frequently occurs are the White and Sandy River drainages. Damages are to bridges and streamside facilities.

Streambank Failure. Significant reaches of streambank are composed of poorly to uncemented gravels, sands and silts. These conditions are most common in the areas of alluvial terrace, glacial outwash and recent alluvial deposits. These materials have very little resistance to erosion by high velocity stream discharge. During periods of peak stream discharge, significant bank failure and retreat occurs. This hazard effects streamside roads, homes, businesses and recreation areas. These conditions are most prevalent along the lower Sandy and Zigzag drainage areas.

Stream Turbidity. This process occurs in conjunction with one or more of the above mass wasting effects. It is however, most severe when associated with landslide activity and related streambank failure. These mass wasting processes usually are the result of failures of material containing a high percentage of clay sized material. This material is transported to the stream by the failure and massive amounts of colodial materials that are put into suspension. Results are degradation of downstream water quality, damage to the aquatic life habitat and excessive maintenance and repair caused by the abrasive action in irrigation and other water transport systems.



### Tectonic Hazards

The West Coast of North America is situated in the Circum-Pacific ring of fire, a band which encircles the Pacific Basin and which is characterized by the greatest volcanic and seismic activity in the world. The crustal structure and tectonic behavior of the northwestern United States are very complex. With the limited knowledge available to us at the present time, it is not possible to predict future tectonic activity with any degree of precision.

### Volcanism

The bedrock of the Western Cascades in northern Oregon represents the cumulative result of volcanism over a period of at least 40 million years. Although little is known about the older unit, it is evident that in the past 7 million years more than 100 cubic miles of rock has been erupted in the Mount Hood area alone (Wise, 1969). Almost half that volume is represented by Mount Hood volcano and neighboring vents of Quaternary (0 to 2 million years) age. In the Bull Run drainage young vents include west Ashoff Butte, a cone at Wilker Plain, and an intracanyon accumulation of flow rock at the west end of Bull Run Lake.

A dacite plug was extruded from the vent of Mount Hood volcano as little as 2,000 years ago (Wise, 1968). Historic records of activity on Mount Hood are poorly documented and subject to debate. The August 17, 1859 edition of the weekly Oregonian comments on activity at that time, and in 1865 a night guard at Fort Vancouver reported seeing and hearing an eruption on the mountain (Folsom, 1970). Fumaroles and hot spots near the crest are active at the present time.

The extreme glacial dissection of Mount Hood indicates that the cone has not been significantly active for at least 10,000 years. Such a time span is little in the life of a large volcano, however. Although there is comfort in the great number of years involved, that time span does not eliminate the possibility of future volcanic activity in the area (Figure 81).

Mount St. Helens, located 60 miles to the north, was active nine times between 1831 and 1857. The eruption of 1831 spread a layer of ash as far north as Mount Rainier; eruptions of 1842 continued during most of the year and spread ash as far east as The Dalles (Folsom, 1970). Numerous flows and eruptions during the past few thousand years in the Cascades to the south are described by Taylor (1965).

To assess the probability of further activity on Mount Hood, personnel of the U.S. Geological Survey have begun geophysical monitoring on a limited basis. Personnel of the Oregon Department of Geology and Mineral Industries have made preliminary arrangements to receive infrared imagery of the vent area on a periodic basis. Follow-up seismic studies may be warranted in the future.

A determination of the consequences of an eruption of Mount Hood requires an estimation of the type of eruption that might occur. McBirney (1968) groups the Cascades volcanoes into two types. The divergent volcanoes, such as Mount Mazama (Crater Lake) are composed largely of two distinct rock types, rhyolite and basalt, and are characterized in their later stages by violent eruptions. The convergent volcanoes are composed primarily of one rock type of intermediate composition (e.g., andesite).

Eruptions in the Mount Hood area consisted of andesite between 4 and 7 million years ago and andesite with minor basalt between 2 and 4 million years ago. Mount Hood volcano, erupted during the last 2 million years, consists of olivine and pyroxene andesite and hornblende dacite. Possible divergence of rock types is indicated and Mount Hood is similar in some respects to Mount Mazama during its early stages of development. It would appear that lava flows, mudflows, and violent eruptions are possible. Pyroclastic rocks are common on the flanks of the mountain.

Lava flows, mudflows, and breccia eruptions would have no significant impact on the Bull Run drainage. The divide at Hiyu Mountain would direct the material to the northeast or southwest away from the watershed. Extremely large mudflows proceeding down the Sandy River could conceivably destroy the aqueducts near Dodge Park, however.

The eruption of ash from Mount Hood would have a profound effect on the quality of water in the Bull Run Watershed. As the material settled into the reservoirs or onto the land, later to be washed into the reservoirs, turbidity would increase considerably. If the ash fall were sufficient to kill vegetation, water quality would be affected for years to come.

Events of low probability but high impact, such as volcanic eruptions, are difficult to incorporate into the planning process. Moreover, there is no means of controlling volcanic activity. If in future years it should be determined that volcanic activity is imminent, the only realistic course of action would be to develop a supplementary source of water for the Portland area and to draft emergency procedures for distribution if that supply were limited.

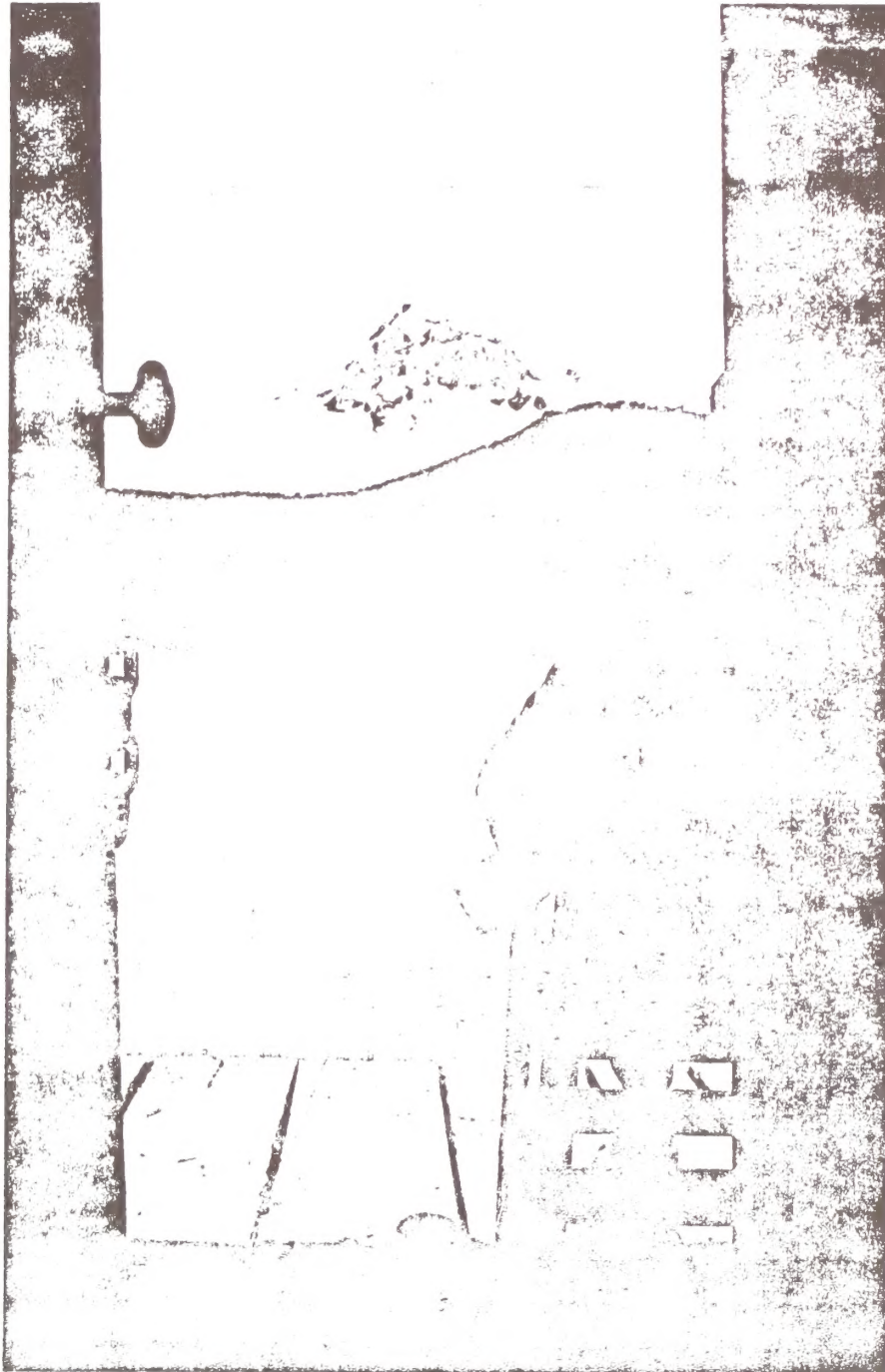


Figure 81. Placid though Mount Hood may appear from Bull Run Lake, the threat of possible future eruption is very real.

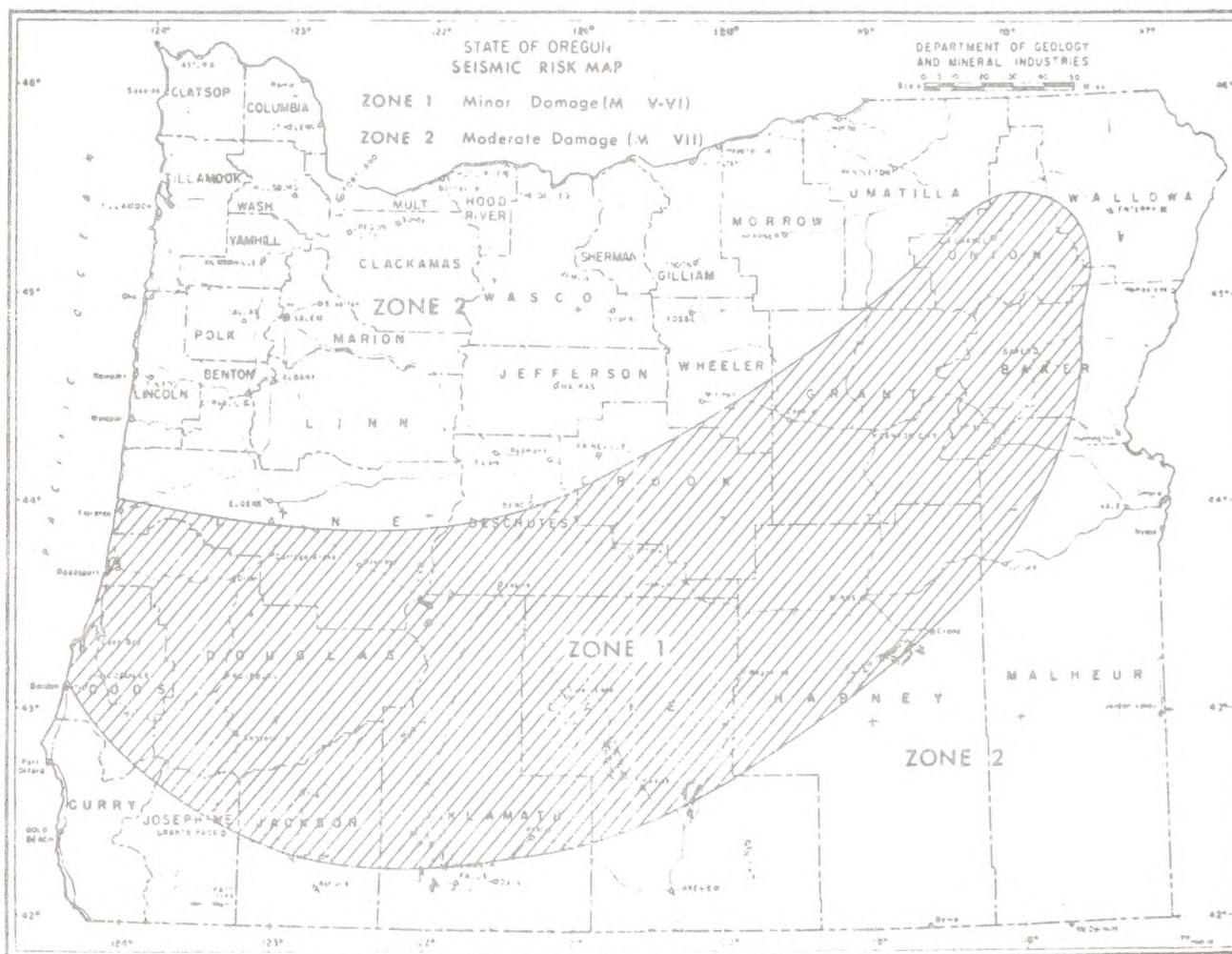


### Earthquakes

The shaking of the earth's surface which accompanies the release of energy at depth is called an earthquake. Associated with the release of energy are displacements of rock along planar surfaces. The specific location of the displacement within the earth is called the focus; the geographic location above the focus is called the epicenter. Where planes of displacement intersect the ground surface they are mapped as faults. Only rarely do we actually see ground displacement associated with a particular earthquake.

A seismic risk map for the State of Oregon (Figure 82) shows the Bull Run area to lie in zone 2, an area where quakes with intensities as high as VII on the Mercalli Scale are possible (Table 6). Historic earthquakes in the Portland area vary between intensities IV and VI (Berg and Baker, 1963; Dehlinger and others, 1963; Schlicker and others, 1964; and Couch and others, 1968) and may be related to the Portland Hills Fault. Earthquake activity in The Dalles area (Berg and Baker, 1963) may be related to the Hood River Fault Zone. An earthquake of Mercalli intensity IV+ was reported at Bull Run on December 26, 1919. The quake is statistically of little significance and possibly was mislocated. There are no mappable faults in the Bull Run Watershed.

An earthquake of Mercalli intensity VII is capable of cracking walls and causing general alarm. Under unfavorable circumstances, such a quake can initiate movement on landslides which, in turn, can damage aqueducts or generate turbidity. It is recommended that the safety factors for landslide-correction projects in critical areas be calculated on the basis of a Mercalli VII earthquake, if possible.



(After Couch and Lowell, 1971)

Figure 82. Seismic risk map of Oregon.

## GEOLOGIC HAZARDS OF THE BULL RUN WATERSHED

Table 6. Scale of earthquake intensities\*

<u>Mercalli Intensity</u>	<u>Description of effects</u>	<u>Equivalent Richter magnitude</u>
I	Instrumental: detected only by seismographs	
II	Feeble: noticed only by sensitive people	3.5 to
III	Slight: like the vibrations from a passing truck; felt by people at rest, especially on upper floors	4.2
IV	Moderate: felt by people walking; swaying of loose objects, including standing vehicles	4.3 to
V	Rather Strong: felt generally, most sleepers awakened and bells ring	4.8
VI	Strong: trees sway and all suspended objects swing; damage by overturning and falling of loose objects	4.9 to 5.4
VII	Very Strong: general alarm; walls crack; plaster falls	5.5 to 6.1
VIII	Destructive: car drivers seriously disturbed, masonry fissured, chimneys fall; poorly constructed buildings damaged	6.2 to
IX	Ruinous: some houses collapse where ground begins to crack, and pipes break open	6.9
X	Disastrous: ground cracks badly; many buildings destroyed; railroad lines bent; landslides on steep slopes	7.0 to 7.3
XI	Very Disastrous: few buildings remain standing; bridges destroyed; all services disrupted; large landslides and floods	7.4 to 8.1
XII	Catastrophic: total destruction; objects thrown into the air; ground rises and falls in waves	Max. recorded 8.9

\*After Holmes (1965)



## POTENTIAL IMPACTS FROM GEOTHERMAL DEVELOPMENT

Environmental impacts which could be associated with geothermal resources vary during the resource exploration, test drilling, field development, power plant construction and operation stages of development.

Effects from exploration would be transitory and generally of small magnitude because field investigations would generally be along existing roads. Equipment for many of the surveys could be backpacked into areas inaccessible to vehicles. Seismic and electrical resistance surveys would cause some temporary soil and vegetation disturbance from vehicles driving off roads in some areas. Shallow holes (i.e. generally less than 500 feet deep) would be drilled to make temperature-gradient and heat-flow measurements, but impacts would be minimized because drilling equipment would generally be mounted on a small truck and exploration would be near existing roads. Federal and state requirements ensure that these sites would be plugged, covered and rehabilitated after measurements are completed.

Potential adverse impacts from test drilling and field development would include conflicts with land use, air and water pollution and noise. Construction of access roads and preparation of sites for the deeper and larger wells drilled during this stage would result in impacts ranging from blowing dust while vegetation is being re-established to some disturbance or loss of vegetative cover and wildlife habitat. Land requirements for wells and other installations such as pumps would vary on the drilling site with surface conditions and the type of resource found but generally, will affect only one to two acres at each site.

The most serious threat to air and water quality at this stage would be from a well blowout which could occur if pressures build up at the bottom of a well, but this potential hazard can be controlled through improved drilling and casing technology and enforcement of federal and state regulations. Improper drilling, cementing and well monitoring could cause groundwater contamination by permitting poor quality geothermal fluids under high pressure to migrate upward into aquifers. Air pollution is not a major problem during this stage.

Well drilling and testing could create high frequency and high intensity noise if compressed air were used in drilling instead of mud, particularly in vapor dominated wells. Flowing fluid wells would not create a noise problem. Because drilling in the Planning Unit would generally be away from populated areas, the noise should not have a significant affect on area residents and most visitors.

There are three primary types of conversion cycles for geothermal power: dry steam, flashed steam and the binary cycle. "Dry steam" would be used in the case of a dry steam (vapor dominated) resource; it produces power in a manner similar to conventional fossil fired plants. Noncondensable gases in the steam would be vented to the atmosphere with the cooling tower exhaust and excess cooling fluids would be discharged to local streams or be reinjected into the geothermal reservoir. Hydrogen sulfide emissions could be reduced through a special process. Hot water geothermal resources are far more common and can be converted to power through a flashed steam or binary cycle if temperatures

exceed 400°F or the hot water could be used for direct heating of buildings. Environmental effects from flashing would be similar to the dry steam cycle, except that more fluid would have to be reinjected into the reservoir and noise problems would be reduced.

The binary cycle would have advantages over flashed steam because it would be a closed system operation that could use resources with lower temperatures or in desirable amounts of dissolved solids, or nonconsensible gases because it would extract energy from the total produced fluid. Binary conversion would be more complicated and costly and would require additional heat exchangers and probably supplemental cooling water supplies.

Insulated pipelines ten to 30 inches in diameter would be used to transmit geothermal steam or hot water from production wells to the power plants. Generally, these would be on the surface due to the high cost of placing them underground and the need for expansion. Another potential alternative would be the use of larger pipelines to transmit steam or hot water longer distances for direct local heating or energy use.

Existing transmission line corridors would usually be used to transmit power generated from geothermal power plants. Size and location of connecting lines would be dependent on the power output. Lines could be large; one 110MW power plant could supply the power needs of Eugene, for example.



# EXHIBIT I

## WATER QUALITY AND QUANTITY ASSESSMENT

Water Quantity. The rate of change from normal stream flow patterns by development is affected by the percent of the watershed developed and the severity of the development. In general terms, the larger percent of the drainage that is developed the greater the effect on stream flow will be. The same is true of severity of development. The more severe the treatment the greater the effect on stream flow will be. These two variables can be assigned factors that can be combined to show a comparative rating for different alternatives.

The following ratings have been developed for the twelve land categories:

<u>Category</u>	<u>Area Designation</u>	<u>Severity Factor</u>
1	Environmental Protection	1
2	Wilderness	0
3	Outdoor Recreation	2
4	Developed Recreation	5
5	Scenic Forests	3
6	Commercial Forests	4
7	Farm	5
8a	Rural Housing	5
b	Low Density Recreation	7
c	Medium Density	10
9-11	Community Areas	10

To get a comparative value for the different alternatives, the percent of the area within each category is multiplied by the factor. The values computed for the total planning area are:

For Alternative A	266
For the Proposed Action	242
For Alternative B	227

The maximum value possible would be 1,000, the minimum value possible would be 0. The minimum value represents no development, the maximum value represents full development in the high development categories of the entire area.

If the value were 1,000 for a drainage, the following changes in stream flow would be expected.

1. The maximum flood peaks would increase less than 10%.
2. The high flow from normal spring runoff would increase 25%.
3. Summer low flow would be reduced to 50% of normal.
4. The total annual yield would increase less than 10%.

These figures are extrapolated from reports of studies during the past eight years. An estimate of the magnitude of change by the various alternatives can be determined by multiplying the values for each alternative by the percentages shown above and dividing by 10. For example, the comparative increase in the high flow from normal spring runoff for Alternative A would be  
Alternative B would be . . . This indicates that the comparative difference in spring runoff in the major drainages would be changed by less than one percent from the plan with maximum development

to the plan with minimum development. The amount of change in local drainages where development is concentrated would be considerably greater because the percent of development would be much greater.

Water Quality. Water quality is affected much the same. The area of treatment and severity of treatment are complementary in determining the degree of degradation. However, another factor which may tend to mask these influences involves the design of the activities or projects. This is as true of nonpoint\* activities as with point\* activities. The quality parameters associated with nonpoint sources that are most likely to be critical are turbidity (which for discussion here will include sedimentation), temperature, and nutrients.

The parameters included under the headings of chemical and bacteriological are affected more by point sources of pollution. At present there are isolated problems of both types of pollution that could be improved. There are, therefore, possibilities of improving the quality of water in the area by whatever plan is adopted.

As a general axiom, the purest water comes from areas with the least disturbance. The deviation from natural water quality is generally proportional to the amount of development or level of activity. This is similar to the relation that is developed for stream flow. However, water quality is affected more by the design of the project or the activity. With this reasoning it is possible to meet water quality standards with any of the alternatives. The general direction statement under water quality says no activity will be allowed to degrade water quality below established standards. To meet water quality standards, more elaborate and therefore more costly water protection measures are needed when more activities occur.

For example: In considering temperature increases as a result of timber harvesting. The criteria may allow a  $2^{\circ}$  F increase in temperature. If temperatures increase  $1^{\circ}$  F for every 150 feet of stream that is exposed to direct sunlight and if shade is restored naturally by revegetation years, one unit could be cut along the stream that would expose 300 feet every 10 years. However, if the cutting cycle is increased to where several units with 300 foot sections of the stream are involved within 10 years, special measures must be taken to replace or return the shade. These measures may include leaving buffer strips, erecting temporary shade structures or planting fast growing tree species that will reduce the time to reestablish shade. All these methods cost money and the more shade needed, the more the cost will be. This is only one sample, but a similar cost relation exists for other parameters. Generally the cost is not a simple proportional increase. The cost generally increases by the square of the level of activity. Thus if the level of an activity increased by three, the cost of meeting water quality standards would increase by nine. The alternatives of present plan, proposed plan, and conservative plan show an increase in timber production of 23%, 22%, and 16% respectively above present levels. Costs of water quality protection may increase by the square of the increase. This increase may show up as a reduction in the stumpage rate. It may not result in a reduction of net returns.

The increase in housing is much greater than it is for timber. The increases are \_\_\_\_\_ times the current level. This involves an increase in the cost of water protection of \_\_\_\_\_ times the current rate. Most of this increase will be borne by the residents of the area.



A discussion on the quality of water is included in the report, Mt. Hood Study "Ground Water" by H. R. Sweet and F. G. Lissner. The indication is that water quality standards are not being met in all cases under the present level of activity. This means the current cost of protecting water quality is below the level required to meet the criteria.

ENVIRONMENTAL ASSEMENTS - SOILS

<u>Land Categories</u>	<u>Relative Level</u>	<u>Index Rating 1/</u>	<u>Associated Impacts</u>
Environmental Protection, Wilderness & Wilderness Study & Unroaded Recreation.	Low	2	Slight to moderate erosion from trail and campsite development.
Developed Recreation**	High to Severe	8-10	High erosion during construction, impervious surfacing, topsoil removal & compaction from roads, utilities & building siting. Drainfields.
Roaded Recreation	Low to Moderate	3-6	Erosion from roads, soil compaction from logging systems & developed recreation sites (less than Devlpd Recreation).
General Forest*	Moderate	6	Erosion from roads, soil compaction from logging systems & developed recreation sites (less than Roaded Recreation).
Farm	Low to Moderate	3	Erosion from farm operations; soil compaction around stock watering areas.
Housing, Commercial, ** Industrial & Special Sites	High to Severe	8-10	High erosion during construction, impervious surfacing, topsoil removal & compaction from roads, utilities & building siting. Drainfields.

\* Degree of soil damage, depending on logging system type:

- 2% - helicopter and balloon
- 7% - cable and suspended
- 28% - tractor-haul

\*\* Degree of soil damage, depending on development intensity:

Areas Impacted

Covered surfaces

- 0-5%
- 5-33%
- 33-100%

Construction Disturbance

- 0-10% - Rural housing & dispersed recreation
- 10-50% - Low density housing & developed recreation.
- 50-100% - Resort, commercial, etc.

1/ Index rating is a measure of the degree of impact on the soils resource on a scale of 0-10. 0 = lowest impact, 10 = highest.



Land Classes	Timbr.	Quality	Quant.	Recreation	Agriculture	Development	Soil Units	
A SCENIC-WILDLANDS	1	N N	M L	L M	W	U	U	0, 11 7 30, 60V, 70V, 21E, 28, 40V 60G, 60M 50M, 50V, 325, 375 10G, 10M, 40G, 300, 2, 63 10V, 15M 15V, 20, 26, 27 25, 29, 40M, 3*, 6*, 15, 397 1*
	2	N	H	H	D	U	D1 D2	11G, 15G
	3	L	H	H	W	U	U	10 year flood plan
B MARGINAL FOREST-RANGELANDS	1	L	H H	H M	D	R	D2	22C, 22G, 22D, 23G, 17G>15 24G, 14G>15, 16G>15, 17hG>15
	2	L	H H	M H	D	R	B1 D2 D2 S	14G<15, 16G<15, 17hG<15 17G<15
	3	L	L L	M L	W	R	U	1, 6E, 393f, 528E, 17hV 3E, 6EH, 242F
	4	L	M M M	L M H	W	F	U	9E, 318F 12E, 14M, 14Va, 16M, 17hM, 243F 529F, 14E 17M, 100 yr. Flood Plain 4-5/60 - 120/4-5
	5	L	L L L	M L H	W	U	U	14V, 17M1, 52V, 32V, 71V 20E 53V 17Vt, 17Vta, 72M, 72V 12V 17V, 43V
	6	L	M M	M H	W	U	U	52M, 13E 42M, 42Va, 43M, 43Ma, 49M, 49V 42V
C FOREST-WATERSHED	1	H	L L	M H	W	U	U	37M, 37Vb, 37E, 61E, 45V
	2	H	M M	M H	W	U	U	47M, 66, 41M 48M 45M
	3	M	L L L	L M H	W	U	U	18Mt, 18V, 18VE, 17Va, 77sM, 77V, 77sV 41 ME, 41VE, 41V, 41Va, 48V, 443F 45Va
	4	M	M M M	M L H	W	U	U	53M, 18M, 32Mc, 32Vc 56M 12M, 44M, 44Ma

\* Bull Run - Sandy Numbers

Land Classes	Tim ber	Quality	Quant.	Recrea- tion	Agri- culture	Develop- ment	Soil Units
GENERAL RESOURCE	1	H	M	M	D	R	$\begin{matrix} D_1 \\ D_2 \end{matrix} D_2 S$ 32G<15, 37B, 37C, 37G<15, 61B 61C, 18C, 18G<15 41B, 41C, 41G<15, 32Gc<15, 47B 47C, 66G<15, 47G<15, 48B, 48C 48G<15 42G<15, 44G<15, 45G<15
	2	M	H	H	D	U	$\begin{matrix} D_1 \\ D_2 \end{matrix} D_2 S$ 43G<15 52G<15, 53G<15, 8, 13G<15, 56G<15
	3	H	H	H	D	R	$D_2$ 42G>15, 44G>15, 45G>15 32G>15, 41G>15, 32Gc>15, 47G>15, 66G>15, 48G>15, 41E, 41D, 47D 47E, 48D, 48E 37G>15, 18G>15, 37D, 37E, 61D 61E, 61F, 18D
	4	M	H	H	D	U	$D_2$ 43G>15 52G>15, 53G>15, 6, 13G>15, 441E 56G>15 43, 381B, 351B
AGRICULTURE-FOREST	1	M	H	M	D	C	$\begin{matrix} D_1 \\ D_2 \end{matrix}$ 5, 12, 22, 24, 282C, 283D, 740B, 741C 7C*, 7D*, 12G, 7*
	2	M	H	L	D	C	$\begin{matrix} D_1 \\ D_2 \end{matrix} D_2 S$ 9, 311E, 281B
	3	N	M	L	D	C	$D_2$ 322B, 323C 288E

\* Bull Run-Sandy Numbers



EXHIBIT K

Plants of the Mt. Hood Planning Unit considered for adoption as Rare, Endangered, or Threatened by the Oregon Rare and Endangered Plant Species Task Force.

Arabis furcata  
Arenaria purnicola  
Betula glandulosa var. glandulosa  
Calamagrostis breweri  
Calypso bulbosa  
Cimicifuga laciniata  
Collomia debilis var. larsenii  
Cypripedium montanum  
Draba aureola  
Eburophyton austinae  
Eriogonum umbellatum var. hausknechtii  
Habenaria orbiculata  
Hemitomes congestum  
Hulsea nana  
Hypopitys monotropa  
Isopryum hallii  
Lilium washingtonianum  
Lycopodium complanatum  
L. inundatum  
Parnassia fimbriata var. hoodiana  
Penstemon euglaucus  
P. peckii  
P. subserratus  
Phlox hendersonii  
Pityopus californica \*  
Pleurocospora fimbriolata  
Poa suksdorfii  
Polystichum andersonii  
P. kruckebergii \*  
P. lonchitis  
Potentilla villosa  
Ribes watsoniana  
Sedum divergens  
Silene suksdorfii  
Smelowskia ovalis  
Thelypteris nevadensis

\*Also listed by the Smithsonian Institution as Endangered or Threatened.

FORESTED PLANT COMMUNITY SURVEY  
MT. HOOD PLANNING UNIT

1972 - N. Meador

Plant Community	Total Plots	Percent of	
		E side* Plots	W side* Plots
Western hemlock/vine maple/swordfern ( <u>Tsuga heterophylla</u> / <u>Acer circinaatum</u> / <u>Polystichum munitum</u> ). Associated species: Douglas-fir ( <u>Pseudotsuga menziesii</u> ), Oregon grape ( <u>Berberis nervosa</u> ), oxalis ( <u>Oxalis oregana</u> ). Found at elevations ranging from about 1825-1975 feet on the westside of Mt. Hood.	5.3	---	7.5
Western hemlock/vine maple-big huckleberry ( <u>Vaccinium membranaceum</u> ). Associated species: Douglas-fir, Oregon grape, salal ( <u>Gaultheria shallon</u> ), swordfern, oxalis. Found at about 2000-2150 feet virtually exclusively on the west side of Mt. Hood.	8.6	1.1	12.2
Western hemlock/rhododendron ( <u>R. macrophyllum</u> /Oregon grape. Associated species: Douglas-fir, mixed shrub (huckleberry, salal, vine maple), sparsely herbaceous twinflower ( <u>Linna borealis</u> ), swordfern. Occurs at elevations of about 2670-2800 feet on relatively steep slopes on the west side of Mt. Hood.	13.9	---	19.7
Western hemlock/chinkapin ( <u>Castanopsis chrysophylla</u> )/twinflower ( <u>Linna borealis</u> ). Associates species: Douglas-fir, wildrose ( <u>Rosa gymnocarpa</u> ), boxwood ( <u>Pachystima myrsinites</u> ), beargrass ( <u>Xerophyllum tenax</u> ). Found at elevations of about 3275-3425 feet on steep slopes on both the east and west sides of Mt. Hood	15.6	25	11.7
Pacific silver fir ( <u>Abies amabilis</u> ), big huckleberry/bunchberry dogwood ( <u>Cornus canadensis</u> ). Associated species: Douglas-fir, western hemlock, rhododendron, beargrass. Occurs at elevations of about 3450-3550 feet on the west side. This is considered an intermediate type between the western hemlock types and subalpine forest.	14.6	---	20.6



Mountain hemlock ( <u>Tsuga mertensiana</u> )/ Pacific silver fir/rhododendron/beargrass. Associated species: Douglas-fir, lodge- pole pine ( <u>Pinus contorta</u> ), big huckle- berry. Found at elevations of about 3700-3850 feet on steep midslopes pre- dominantly on the west side of Mt. Hood. This type is thought to be a result of sandy soils.	15.6	2.2	21.1
Mountain hemlock/big huckleberry/bear- grass. Associated species: Pacific silver fir, noble fir ( <u>Abies procera</u> ), vanilla leaf ( <u>Achlys triphylla</u> ). This is the predominant subalpine forest type found at elevations of about 4575-4675 feet on both the east and west sides* of Mt. Hood.	25.9	71.6	7.0

\* "Eastside" denotes the area that drains the Hood River and its tributaries; "westside" indicates the area that drains into the Sandy River and its tributaries.

Note: Communities that are titled "western hemlock" are named so because of the large number of hemlock seedlings found in understory that will eventually replace the Douglas-fir presently dominating the stands if no disturbance takes place.

## EXHIBIT L

### WILDLIFE ASSESSMENT AND SPECIES LISTS

1. Status of Specially Classified Wildlife
2. Cavity and Snag Users
3. Management Regimes that Affect Wildlife Diversity
4. Wildlife Assessment
5. Fish and Wildlife Species List
6. Snag Policy



CHECKLIST OF SPECIALLY CLASSIFIED WILDLIFE FOR THE MT. HOOD N.F.

July 1977

Species	Known to Occur	Expected to Occur	Federal Classification			Oregon State Classification		Note & Comments
			1/ Endangered	2/ Threatened	3/ Unique	1/ Endangered	2/ Threatened	
Aves:								
American Peregrin Falcon ( <u>Falco peregrinus anatum</u> )	X		X			X		Considered to be an occasional visitor. No known nest sites.
Northern bald eagle ( <u>Haliaeetus leucocephalus alascanus</u> )	X				X 4/		X 4/	Mainly a wintering bird. No known nest sites.
Northern spotted owl ( <u>Strix occidentalis caurina</u> )	X				X		X	
Mammals:								
Wolverine ( <u>Gulo luscus</u> )	X				X		X	Cascade Mtn. records are confined to remote areas.
Amphibians:								
Western spotted frog ( <u>Rana pretiosa</u> )	X				X		X	Originally distributed throughout most of Oregon in suitable habitat. Introduction of the bullfrog ( <u>Rana catesbeina</u> ) has greatly reduced or eliminated the spotted frog from western Oregon.  The natural dispersion of the leopard frog ( <u>R. pipens</u> ) into the Snake River drainage may threaten the eastern Oregon populations.

1/ (E) Endangered Species. A species or sub-species which is in danger of extinction throughout all or significant portion of its range.\*

2/ (T) Threatened Species. Any species or sub-species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.\*

3/ (U) Unique Species. As defined in the FSM 2605, wildlife which have considerable scientific, local, or national interest. Special protection or management may be needed to protect these species or sub-species. Also, species which are included on an official State list as endangered or threatened and are not on the Federal list of endangered or threatened species are considered to be unique species by the Forest Service. Forest list of unique species pending.

4/ Proposed modification of classification for bald eagles is pending. The sub-specific names of the southern bald eagle (Haliaeetus lurocephalus lurocephalus-endangered on the Federal list and protected by the Endangered Species Act) and the northern bald eagle (H. l. alascanus-threatened) on the Oregon State list, unique on the Forest Service list) will be merged to one species - Haliaeetus lurocephalus. The bald eagle (Haliaeetus lurocephalus) will be classified as endangered throughout the conterminous 48 United States except in Oregon, Washington, Minnesota, Wisconsin, and Michigan, where it will be listed as threatened. July 12, 1976, Federal Register; 41 (134): 28525-28527.

\* Species classified as endangered or threatened and are on the Federal checklist will be afforded the protection of the Endangered Species Act of 1973. These species must be published in the October 27, 1976 Federal Register, Part IV; Endangered and Threatened Wildlife and Plants, Vol. 41 No. 208; 47180-47198, or other Federal Registers which update Endangered and Threatened Wildlife and Plants.

# CAVITY AND SNAG USE BY FAUNA OF THE MT. HOOD PLANNING UNIT

Species	Primary Cavity Animal (1)	Secondary Cavity Animal (2)	Nest or Den in Cavity Occasionally	Dependent on or Uses Snag Habitat (2)
AVIFAUNA: *				
White-breasted nuthatch	x			x
Red-breasted nuthatch	x			x
Pygmy nuthatch	x			x
Hairy woodpecker	x			x
Downy woodpecker	x			x
White-headed woodpecker	x			x
Black-backed 3 toed "	x			x
Yellow-bellied sapsucker	x			x
Pileated woodpecker	x			x
Lewis' woodpecker	x			x
Common flicker	x			x
Wood duck		x		x
Common goldeneye		x		x
Barrow's goldeneye		x		x
Bufflehead		x		x
Harlequin duck		x		x
Hooded merganser		x		x
Common merganser		x		x
Spotted owl		x		x
Barn owl		x		x
Saw-whet owl		x		x
Horned owl			x	x
Screech owl		x		x
Pygmy owl		x		x
American kestrel		x		x
Goshawk			x	x
Tree swallow		x		x
Violet-green swallow		x		x
Mountain bluebird		x		x
Black-capped chickadee		x		x
Mountain chickadee		x		x
Chestnut-backed chickadee		x		x
Starling		x		x
House sparrow		x		x
Vaux's swift		x		x
House wren		x		x
Winter wren		x		x
Bewick's wren		x		x
House finch		x		x
Brown creeper		x		x
Ruffed grouse			x	
Turkey vulture				x
Sharp-shinned hawk				x
Cooper's hawk				x
Red-tailed hawk				x
Golden eagle				x
Bald eagle				x
Belted kingfisher				x
Olive-sided flycatcher				x



Species	Primary Cavity Animal (1)	Secondary Cavity Animal (2)	Nest or Den in Cavity Occasionally	Dependent on or Uses Snag Habitat (3)
MAMMALS: *				
Chickaree		x		x
Flying squirrel		x		
Marten		x		x
Townsend chipmunk		x		x
Fisher		x		x
Red tree mouse		x	x	
Bushy-tailed woodrat		x		x
Raccoon		x		
Opossum		x		
California myotis		x		x
Little brown bat		x		x
Big brown bat		x		x
Silver-haired bat		x		x

\* See Avian and Mammal checklist for Mt. Hood Planning Unit.

- (1) Primary cavity use: These animals excavate their own cavity in trees or snags and always den or nest in cavities.
- (2) Secondary cavity use: These animals are nonexcavators and are dependent on cavities in trees and snags made by the primary group or by natural means such as decay. These animals almost always den or nest in cavity.
- (3) Snag: Any standing dead tree or portion of the stem of a standing dead tree with a minimum DBH of ten inches and a minimum height of ten feet. No differentiation between hard or soft snags is made. Nor is the use of a snag by a given species explained. The purpose of this column is to demonstrate the need for snag habitat in the Planning Unit.

MANAGEMENT REGIMES CONSIDERED THAT AFFECT WILDLIFE SPECIES DIVERSITY

Value****	Ecologic Elements	W-1	A-3	A-5	A-7	D-1	D-2	D-3	T-1	T-2	T-3	A-1	A-2
5	a) Ecotonal Diversity (Natural)	1	1	2	4	5	4	4	1	3	4	4	4
3	b) Vertical Vegetative Layering	1	1	2	4	5	5	5	1	4	4	4	5
4	c) Snag Habitat (Whips Included)*	1	1	1	3	4	4	4	3	4	5	4	5
2	d) Harassment Level	1	1	2	5	5	4	4	2	3	3	3	4

Species Diversity Impact Factor\*\*  
(Σ a,b,c,d)

4 4 7 16 19 17 17 7 7 14 16 15 18

Weighted totals

14 14 24 54 66 59 59 24 24 49 58 54 63

\* See Glossary

\*\* Impact on species diversity

3 \_\_\_\_\_ 15  
Low High

\*\*\* See Code Appendix

\*\*\*\* Order of importance - in terms of maintaining species diversity



1 = Trampling and removal of vegetation results in minor impacts to areas of concentrated use, e.g., trails, popular camp sites, view points, etc. With proper rest-rotation, vegetative elements (except snag habitat) may completely recover. Any vegetative loss should be insignificant in terms of animal population survival.\*

Harassment is low (see harassment section in Appendix B). Any effect on wildlife population survival rates is insignificant.

2 = Similar to #1, though vegetative impacts are slightly greater due to a greater number of people use.

Harassment is slightly higher, though still considered as low (see harassment section in Appendix B).

3 = Vegetative damage and removal may completely alter ecotone types and vertical vegetational layering in localized areas around shelters, low standard roads, parking pull-offs, and crop lands. Though use is mostly seasonal, soil compaction and possible erosion plus an increase in people use, (except for areas where group selection timber harvest may be suitable, or similar activities have not exceeded six acres) damage to natural plant communities should be considered as permanent, even though natural vegetative variety might recover given an extended period of time.

Harassment should be considered as moderate (see harassment section in Appendix B).

Loss of snag habitat is not great, i.e., snags have not been removed along roads, parking areas, trails or structures, nor are they necessarily being salvaged for wood fiber, though some limited removal for safety reasons may occur. Some natural snag habitat replacement occurs.

4 = Vegetative damage and removal has altered ecotonal areas and vertical vegetative layering.  
Use may be annual or seasonal.

Damage to vegetational variety is permanent in at least some of the area, i.e., paved roads, cemented or highly compacted sites.

Due mainly to access ease and increased use levels in surrounding areas, the people use (recreational and commercial) is greater than in 1 through 3 above.

Harassment level may vary from moderate to high (see harassment section in Appendix B).

The loss of snag habitat is critical due to removal for wood fiber, state safety regulations and/or fire policies. Also, natural snag habitat replacement is very low.

If timber management occurs, it is less than full yield, though the policy for converting old growth (200+ years) to second growth holds.

5 = Similar to #4 above except that use is on a year around basis.

Harassment level should be considered as high (see harassment section Appendix B).

Loss of snag habitat is critical and complete. No natural replacement of snag habitat.

If timber harvest occurs, it is full yield.

#### Recreation

W1 - Management as a designated wilderness or wilderness study area.

W3 - Dispersed recreation, retention of primitive conditions, provisions for trails but not trail camps or shelters.

W5 - Same as W3, except that trail camps and shelters could be provided.

#7 - Developed recreation, oriented around roads and car camps.

#### Agriculture

A1 - Nonirrigated agriculture. Usually includes production of pasture, hay and fodder crops and cereal grains.

A2 - Irrigated agriculture -- orchards, row crops and irrigated pasture and cereal grains.

#### Development

D1 - Residential or commercial development up to eight dwelling units or equivalent per acre, requiring tertiary treatment of sewage.

D2 - Residential development of two or less housing units per acre, requiring tertiary treatment of sewage.

D3 - Same as D2, except septic systems would be used.

#### Timber Harvest

T1 - 50% of full yield. Visual character would be retained and harvest would be by small group selection and salvage of dead and dying trees only.

T2 - 70% of full yield. Enter every 20 years. No precommercial thin.

T3 - 100% of full yield, more than one cutting within rotation age. Intensive timber management with full stocking level control. Enter every ten years with precommercial thin.

## Harassment Rating Key

Harassment Element	Harassment Rating
Residential, $\geq$ 5 units/sq mile	5
Residential, $<$ 5 units/sq mile	3-4
Roaded motorized use, year around	3-4
Roaded motorized use, seasonal	2-3
Non-roaded motorized use, year around	4-5
Non-roaded motorized use, seasonal	2-4
Trail use, $\geq$ 1500/year*	4-5
Trail use, $\geq$ 300/year	3-4
Trail use, $\geq$ 30/year	2-3
Trail use, $<$ 30/year	1
Free ranging dogs, $\geq$ 5/observer/visit	5
Free ranging dogs, $\geq$ 5/observer/visit	4
Free ranging dogs, $\geq$ 5/observer/year	3
Free ranging dogs, $<$ 5/observer/year	2
X-C hiking or skiing, $\geq$ 1500/year*	5
X-C hiking or skiing, $\geq$ 300/year	4
X-C hiking or skiing, $\geq$ 30/year	3
X-C hiking or skiing, $<$ 30/year	1

Harassment level (summation of harassment ratings)

High	19+
Moderate	10 - 18
Low	0 - 9

\* Ranges compiled from U. S. Forest Service,  
Mt. Hood National Forest Recreation  
Information Management Surveys - 1973-1975.



## WILDLIFE ASSESSMENT

Environmental Impacts. The most critical impact to wildlife is the continuing increase in the human population. This will result in the loss of the outstanding wildlife diversity through harassment and destruction of natural habitat systems via an invasion of residential developments, transportation systems, plus other associated facilities and activities which accompany increasing human population.

Major ecological elements detrimentally impacted by the increasing human population are: Ecotonal diversity, vertical vegetative layering, hydroseres, snag habitat and harassment which in turn affects animal population survival.

Closely related to the human population increase and harassment is the increasing problem of free-ranging dogs and cats. There are three major critical and detrimental impacts in the Planning Unit resulting from dogs and cats: (1) wildlife, (2) human health and (3) agricultural damage to livestock.

1. Wildlife. Impacts to wildlife are especially severe in winter and during periods of reproductive activity. Free-ranging dogs (summer and winter), especially in high residential areas of the Planning Unit, exceed five free-ranging dogs observed per visit by forest visitors. Numerous dog attacks on game and nongame animals have been reported by land managers in the Planning Unit. Reports of dogs killing deer in the Wildwood area have been recorded. Several studies have been conducted which reflect impacts to wildlife. For example, in 1972 it was estimated that dogs in North Carolina killed three times more deer than did bobcats. Other research has shown that probably the most serious predator on deer is the domestic dog. Areas of the Planning Unit where free ranging dog occurrence is highest is usually well shaded and/or in the upper elevations where the atmospheric temperature is relatively cool. Field observations made on the Planning Unit and the times wildlife attacks by dogs have been recorded shows that dogs appear to be active most of the day. Hence, wildlife probably receives dog pressure not only at night, but during the daylight hours as well.

Another impact to wildlife is the loss of genetic integrity and natural predator/prey relationships of wildlife populations. Dogs and coyotes will interbreed. Also, it has been suggested that dogs (true dogs or coyote/dog hybrids) could replace the ecological niche of coyotes, wolves and/or fox. With the tremendous interest and increase in wildlife viewing in Oregon and the world, a loss of part of the "wild kingdom" to hybridism and replacement is something land managers and decision makers should consider.

2. Human Health. Research has pointed out a serious public health hazard from free-ranging dogs and cats. This results from bites, disease transmission and environmental pollution. It is greater than from rats. For example, in 1973, 3500 tons of fecal material and 9.5 million gallons of urine were excreted daily by dogs in the United States. In the city of Portland alone, dogs generate approximately 6000 tons of fecal material in a single year. The number of humans being bitten by free-ranging dogs and cats increases annually. Also, diseases being transmitted by free-ranging dogs and cats are also on the increase.

3. Agriculture Damage to Livestock. As one of the goals of the Planning Unit, was to recognize farming as a critical resource. It is important to deal with the impacts of free-ranging dogs on livestock. There is a conservative five million dollars per year loss in cattle alone.

In biological concepts, the ramifications of impacts of free-ranging dogs and cats in the Planning Unit are staggering. When the increasing recreational activities are considered, the problem becomes even more complex. Studies have shown that people go to the animal pounds to obtain dogs and cats for company in their recreational home, only to release them when they return to their permanent residence after vacation.

It is important to stress that in an area of highly concentrated recreational use, this critical impact to wildlife comes, not always intentionally, but from lack of understanding, unawareness and from "loving it to death." Recreation/residential areas, large group camps and related activities often destroy the very thing which attracted the people to the area in the first place -- wildlife viewing and being with nature in general.

It is also important to stress that with all management alternatives currently open to land managers, wildlife will be severely impacted, both directly and indirectly due to the increased human population in the planning unit and the world.

Mitigative Action. There are several mitigative actions which should be considered as essential if any semblance of the existing wildlife diversity is to be maintained or prolonged.

1. Hold human population increases to a minimum. This must include the development of facilities which exist to accommodate an increase in human population and to minimize people use in general, such as found in dispersed recreation areas.

2. Provide greater protection to the fragile alpine biome. As the natural character of this area with its associated wildlife, cannot be retained with even the present people density, administrating agencies (though very difficult) must cooperate and coordinate management activities which will keep facility development to a minimum and reduce people visitation.

3. Free-ranging dogs and cat control. If the goals of maintaining wildlife diversity and realizing that agricultural land is a critical resource, and if public health is to be maintained, dog and cat control should be an integral part of the planning process. The interagency planning process offers an outstanding tool and opportunity to establish laws, policies and guidelines to manage free-ranging dogs and cats.

As land use activities continue to increase, it may not be in the best interest of resource management or politically comfortable for land managers and county decision makers to consider environmental capacity for people without considering and taking action on free-ranging dogs and cats.

4. Animal damage complaints. As the human population density increases, especially in areas such as the Mt. Hood Planning Unit, there is a proportional increase in the animal damage complaints registered with the Oregon



Department of Fish and Wildlife. Most of the damage complaints are in the form of deer and elk browsing and trampling on gardens and yards; beaver gnawing on domestic shrubbery (which they usually prefer over wild plants); coyotes chasing and breeding domestic dogs; to mention a few.

Animal damage problems will be resolved through cooperative efforts between the Department of Fish and Wildlife and public or private landowners.

## WILDLIFE SPECIES LIST FOR MT, HOOD PLANNING UNIT

### Observation Index Codes\*

- VC Very common; ten or more birds per day per observer.
- C Common; one to nine birds per day per observer.
- U Uncommon; 0 to five birds per day per observer or recorded by reliable sources (persons known for their integrity in bird identification or accurate description of an avian sighting which can be positively identified).
- R Rare; 0 to five birds per year per observer or recorded by reliable sources.
- O Occasional; not seen every year.
- I Irregular; abundance and/or occurrence fluctuates greatly from year to year.
- ? Status undetermined.

### Seasonal Status Codes

- R REsident may be found all or most of the year.
- WV Winter visitor.
- SR Summer resident in Plannint Unit.
- M Migrant; seen only in transit.
- ? Status undetermined.

### Value Wildlife Viewing Value

- |   |  |
|---|--|
| 1 | Very common or common. Visitors could observe this animal and identify it easily.  |
| 2 | Very common or common. Ten or more per day can usually be seen and should be easily identified.  |
| 3 | Common to uncommon. To observe five or more per day, an experienced wildlife viewer familiar with the area might have to spend considerable time and effort. |
| 4 | Rare, irregular or occasional. Observation is usually restricted to a specific type of habitat or area and may require considerable effort to locate.        |
| 5 | This animal is on the specially classified species list or could be considered as peripheral.  |

Predator to Forest Pests identifies species which are known to prey on forest insects, causing damage to commercial trees or to prey on rodents injurious to forest trees (see Snags and Holes section).



Game Animals refers to species protected and managed as game animals or fur bearers.

\*The observation index is based on: Field Journals II through VIII (1968-1975 by Kirk Horn); Breeding Bird Surveys conducted by Kirk Horn and David Marshall in cooperation with the U.S. Fish and Wildlife Service, Survey Route #043, coordinates 4534-12130 (1972-1974); and from conducting public wildlife viewing tours out of Timberline Lodge (1965-1969) by Kirk Horn. The occurrence densities apply only to habitat types required by the species in question.

MT. HOOD PLANNING UNIT

SPECIES	***			***			***	
	Obsrvd	Expect to Occur	Sea-sonal Status	Observation Index	Wildl. Viewing Value Index	Predator to Forest Pests	Game Animal	Wildl. Value Indicator
Common Loon		x	R	R	4			4
Western greb		x	?	?	4			4
Pie-billed greb	x		R	R	4			4
Great blue heron	x		R	EC	3			3
Common egret		x	SR	O	4			4
Trumpeter swan	x		WV	R	4		1	5
Canada goose	x		R	R	3		1	4
White-fronted goose	x		WV	O	4		1	5
Mallard	x		R	C	2		1	3
American widgeon		x	M	?	4		1	5
Wood duck	x		R	?	4		1	5
Ring-necked duck	x		R	R	4		1	5
Barrow's goldeneye	x		?	I	4		1	5
Bufflehead	x		WV	O	4		1	5
Harlequin duck	x		SR	O	5		1	6
Hooded merganser	x		R	R	4		1	5
Common merganser	x		R	U	3		1	4
Turkey vulture	x		SR	C	2			2
Osprey	x		R	U	3	1		4
Sharp-shinned hawk	x		R	U	3	1		4
Cooper's hawk	x		R	U	3	1		4
Red-tailed hawk	x		R	U	3	1		4
Rough-legged hawk	x		?	R	4	1		5
Golden eagle	x		R	U	4	1		5
Bald eagle	x		R	U	5	1		6
Marsh hawk		x	?	I	4	1		5
Osprey	x		SR	U	5			5
Gyr Falcon		x	?	?				
Prairie falcon	x		SR	O	4	1		5
Peregrine falcon	x		?	?				3
American kestrel	x		R	C	2	1		3
Blue grouse	x		R	C	2		1	3
Ruffed grouse	x		R	C	2		1	3
Valley quail	x		R	U	3		1	4
Mountain quail	x		R	U	3		1	4
Ring-necked pheasant	x		R	C	2		1	3
Turkey	x		R	R	4		1	5
Virginia rail	x		SR	R	4			4
Corn	x		SR	R	4			4
American coot	x		R	U	3			3
Killdeer	x		R	C	2			2
Common snipe	x		R,SR	U	3			3



Avian List (continued)

SPECIES	Obsrvd	Expect to Occur	Seas- onal Status	Obser- vation Index	Wildl. Viewng Value Index	Preda- tor to Forest Pests	Game Animal	Wildl. Value Indicator
Spotted sandpiper	x		SR	U	3			3
California gull	x		SR	R	4			4
Gull sp.	x		SR	R				
Band-tailed pigeon	x		SR	VC	2		1	3
Rock dove	x		R	C	1			1
Mourning dove	x		R	C	1		1	2
Barn owl		x	?	?				
Screech owl	x		R	U	4	1		5
Great horned owl	x		R	U	3	1		4
Snowy owl	x		?	I	4			4
Pygmy owl	x		R	U	4	1		5
Spotted owl	x		R	U	5	1		6
Great gray owl		x	R	?				
Long-eared owl		x	SR,WR	?				
Saw-whet owl	x		R	R	4	1		5
Poor-will		x	SR	I	5			5
Common nighthawk	x		SR	VC	1			1
Vaux's swift	x		SR	C	3			3
Rufous hummingbird	x		SR	VC	2			2
Riope hummingbird	x		SR	I	4			4
Red kingfisher	x		R	C	2			2
Common flicker	x		R	VC	1	1		2
Pileated woodpecker	x		R	C	5	1		6
Acorn woodpecker		x	?	?				
Lewis' woodpecker	x		SR	U	3	1		4
Yellow-bellied sapsucker	x		R	U	3	1		4
Hairy woodpecker	x		R	C	2	1		3
Downy woodpecker	x		R	C	2	1		3
White-headed woodpecker	x		R	?	5	1		6
Black-backed three- toed woodpecker	x		R	?	5	1		6
Western kingbird	x		SR	R	4			4
Say's phoebe	x		SR	I	4			4
Willow flycatcher	x		SR	VC	2	1		3
Hammond's flycatcher		x	SR	?	4	1		5
Dusky flycatcher	x		SR	?	4	1		5
Gray flycatcher	x		SR	U	4	1		5
Western flycatcher	x		SR	U	3	1		4
Western wood peewee	x		SR	C	2	1		3
Olive-sided flycatcher	x		SR	C	2	1		3
Horned lark	x		R	C	3			3
Indigo-bird green swallow	x		SR	VC	1			1
Indigo-bird swallow	x		SR	C	2			2
Rough-winged swallow	x		SR	VC	2			2
Barn swallow	x		SR	VC	1			1

## Avian List (continued)

SPECIES	Obsr'd	Expect to Occur	Seas- onal Status	Obser- vation Index	Wildl. Viewing Value Index	Preda- tor to Forest Pests	Game Animal	Wild Ind.	Value
Cliff swallow	x		SR	C	2			2	
Gray jay	x		R	C	2			3	
Steller's jay	x		R	VC	1			1	
Scrub jay	x		R	C	3			3	
Common raven	x		R	C	1			1	
Common crow	x		R	C	2			2	
Clark's nutcracker	x		R	C	3			3	
Black-capped chickadee	x		R	C	2			2	
Mountain chickadee	x		R	C	2			2	
Chestnut-breasted chickadee	x		R	C	2			2	
Common bushtit	x		R	C	3			3	
White-breasted nuthatch	x		?	R	4	1		5	
Red-breasted nuthatch	x		R	VC	2	1		3	
Pygmy nuthatch	x		?	R	4	1		5	
Brown creeper	x		R	C	3	1		4	
Dipper	x		R	VC	2			2	
House wren	x		R	U	3	1		4	
Winter wren	x		R	C	2	1		3	
Bewick's wren	x		R	U	3	1		4	
Rock wren	x		SR	C	3	1			
Robin	x		SR,R	VC	1			1	
Varied thrush	x		R	VC	2			2	
Hermit thrush	x		R	VC	2			2	
Swainson's thrush	x		SR	C	2			2	
Western bluebird		x	?	?					
Mountain bluebird	x		SR	C	3			3	
Townsend's solitaire	x		R	C	2	1		3	
Golden-crowned kinglet	x		R	U	3			3	
Ruby-crowned kinglet			SR	C	2			2	
Water pipit	x		SR	R	4			4	
Bohemian waxwing		x	M	I	4			4	
Cedar waxwing	x		R	C	2			2	
Northern shrike	x		WV	U	3			3	
Loggerhead shrike		x	SR	U	3			3	
Starling	x		R	VC	1			1	
Solitary vireo	x		SR	C	2			2	
Red-eyed vireo	x		SR	C	2			2	
Warbling vireo	x		SR	C	2			2	
Orange-crowned warbler	x		SR,V ?	C	3			3	
Nashville warbler	x		SR	U	3			3	
Willow warbler	x		SR	VC	1			1	
Yellow-rumped warbler	x		SR	VC	1			1	
Black-throated gray warbler	x		SR	C	2			2	



Avian List (continued)

SPECIES	Obsrvd	Expect to Occur	Seas- onal Status	Obser- vation Index	Wildl. Viewng Value Index	Preda- tor to Forest Pests	Game Animal	Wildl. Value Indicator
Townsend's warbler	x		SR	C	3			3
Hermit warbler	x		SR	C	3			3
MacGillivray's warbler	x		SR	VC	1			1
Yellowthroat	x		SR	R	4			4
Yellow-breasted chat	x		SR	R	4			4
Wilson's warbler	x		SR	VC	2			2
House sparrow	x		R	VC	1			1
Western meadowlark	x		R	VC	2			2
Yellow-headed blackbird		x	?	I	4			4
Red-winged blackbird	x		SR	VC	1			1
Northern oriole	x		SR	C	2	1		3
Brewer's blackbird	x		R	VC	1	1		2
Western tanager	x		R	VC	2	1		3
Black-headed grosbeak	x		SR	VC	2			2
Indigo bunting	x		SR	C	3			3
Evening grosbeak	x		R	VC	2			2
Purple finch	x		R	U	3			3
Cassin's finch	x		R	U	3			3
House finch	x		R	VC	2			2
White-crowned rosy finch	x		?	C	3			3
Pine siskin	x		R	VC	2			2
American goldfinch	x		R	VC	2			2
White-winged crossbill	x		?	I	4			4
Spotted towhee	x		R	C	2			2
Savannah sparrow	x		?	?				
Vesper sparrow	x		?	I	4			4
Dark-eyed junco	x		R	VC	1			1
Chipping sparrow	x		SR	VC	2			2
Brewer's sparrow	x		SR	U	4			4
White-crowned sparrow	x		R	VC	2			2
Fox sparrow	x		R	C	3			3
Lincoln's sparrow	x		SR	VC	2			2
Song sparrow	x		R	VC	2			2

## MAMMALIA CHECKLIST

## MT. HOOD PLANNING UNIT

SPECIES	Obsr'd	Expect to Occur	Seas- onal Status	Obser- vation Index	Wildl. Viewing Value Index	Preda- tor to Forest Pests	Game Animal	Wildl. Value Indicator
<u>Didelphidae</u>								
<u>Didelphis marsupialis</u> (common opossum)	x		R	U	3			3
<u>Soricidae</u>								
<u>Sorex trowbridgii</u> (Trowbridge shrew)	x		R	C	2			2
<u>S. vagrans</u> (vagrant shrew)	x			U	3			3
<u>S. palustris</u> (water shrew)		x	?	?				
<u>S. bendirii</u> (marsh shrew)		x	?					
<u>Talpidae</u>								
<u>Neurotichus gibbsii</u> (shrew-mole)		x	?	?				
<u>Scapanus townsendii</u> (Townsend mose)	x			U	3			3
<u>Vespertilionidae</u>								
<u>Myotis lucifugus</u> (little brown myotis)		x	?	?				
<u>M. yumanensis</u> (Yuma myotis)		x	?	?				
<u>M. evotis</u> (long-eared myotis)		x	?	?				
<u>M. thysanodes</u> (fringed myotis)		x	?	?				
<u>M. volans</u> (hairy-winged myotis)		x	?	?				
<u>M. californicus</u> (California myotis)		x	?	?				
<u>Lasionycteris noctivagans</u> (silvery-haired bat)	x			VC	1			1
<u>Eptesicus fuscus</u> (big brown bat)	x			U	3			3
<u>Lasiurus cinereus</u> (hoary bat)		x	?	?				
<u>Plecotus townsendii</u> (lump-nosed bat)		x	?	?				
<u>Ochotonidae</u>								
<u>Ochotona princeps</u> (pika)	x			VC	2			2
<u>Leporidae</u>								
<u>Lepus americanus</u> (snowshoe hare)	x			C	2			2
<u>Aplodontiidae</u>								
<u>Aplod</u> <u>rufa</u> (mountain beaver)				VC	1			1



## SPECIES

	Obsr'd	Expect to Occur	Seas- onal Status	Obser- vation Index	Wildl. Viewing Value Index	Preda- tor to Forest Pests	Game Animal	Wildl. Value Indi- cator
<u>Sciuridae</u>								
<u>Marmota flaviventris</u> (yellow-bellied marmot)	x			C	3			3
<u>Otospermophilus beecheyi</u> (Beechey ground squirrel)	x			VC	1			1
<u>Callospermophilus lateralis</u> (Sierra Nevada golden-mantled ground squirrel)	x			VC	2			2
<u>Eutamias minimus</u> (least chipmunk)	x			VC	1			1
<u>E. amoenus</u> (yellow pine chipmunk)		x	x	?				
<u>E. townsendii</u> (Townsend chipmunk)	x		R	U	3			3
<u>Tamiasciurus douglasii</u> (Douglas squirrel)	x		R	VC	2			2
<u>Sciuridae, Pteromyinae</u>								
<u>Glaucomys sabrinus</u> (northern flying squirrel)		x	R	C	3			3
<u>Geintutidae</u>								
<u>Thomomys monticola</u> (mountain pocket gopher)		x	?	?				
<u>T. mazama</u> (Mazama pocket gopher)	x		R	U	3			3
<u>Castoridae</u>								
<u>Castor canadensis</u>	x		R	C	3			3
<u>Cricetidae</u>								
<u>Peromyscus maniculatus</u> (deer mouse)	x		R	VC	2			2
<u>Neotoma fuscipes</u> (dusky-footed woodrat)	x		R	U	3			3
<u>N. cinerea</u> (bushy-tailed woodrat)	x		R	C	2			2
<u>Clethrionomys occidentalis</u> (western red-backed mouse)	x		R	C	3			3
<u>Phenacomys longicaudus</u> (red tree mouse)	x		R	C	3			3
<u>Microtus oregoni</u> (Oregon meadow mouse or creeping vole)	x		R	U	3			3
<u>M. townsendii</u> (Townsend meadow mouse)	x		R	U	3			3
<u>Zapodiadae</u>								
<u>Zapus princeps</u> (western jumping mouse)	x		R	C	2			2
<u>Erethizontidae</u>								
<u>Erethizon dorsatum</u> (porcupine)	x		R	U	3			3
<u>Capromyidae</u>								
<u>Myocastor coypu</u> (nutria)	x		R	R	4			4

## SPECIES

	Obsrvd	Expect to Occur	Seas- onal Status	Obser- vation Index	Wildl. Viewing Value Index	Preda- tor to Forest Pests	Game Animal	Wildl. Value Indi- cator
<u>Canidae</u>								
<u>Canis latrans</u> (coyote)	x		R	C	2	1		3
<u>Vulpes fulva</u> (red fox)		x	?	?				
<u>Urocyon cinereoargenteus</u> (gray fox)								
<u>Ursidae</u>								
<u>Euarctos americanus</u> (black bear)	x			R	4			4
<u>Procyonidae</u>								
<u>Procyon lotor</u> (raccoon)	x			U	3			3
<u>Mustelidae, Mustelinae</u>								
<u>Martes americana</u> (marten)	x		R	R	4	1		5
<u>M. pennanti</u> (fisher)		x						
<u>M. erminea</u> (ermine)	x		R	R	4	1		5
<u>M. frenata</u> (long-tailed weasel)		x	R	R	4	1		5
<u>M. vison</u> (mink)	x		R	U	3	1		4
<u>Mustelidae, Guloninae</u>								
<u>Gulo luscus</u> (wolverine)		x	?	C	5			5
<u>Mustelidae, Mephitinae</u>								
<u>Spilogale putorius</u> (spotted skunk)	x		R	R	4	1		5
<u>Mephitis mephitis</u> (striped skunk)	x		R	R	4	1		5
<u>Mustelidae, Lutrinae</u>								
<u>Lutra canadensis</u> (river otter)	x		R	R	4			4
<u>Felidae</u>								
<u>Felis concolor</u> (mountain lion)	x		R	O	4	1		5
<u>Lynx rufus</u> (bobcat)	x		R	R	4	1		5
<u>Cervidae</u>								
<u>Cervus canadensis</u> (Canadian elk)	x		R	VC	1			1
<u>Odocoileus hemionus columbianus</u> (black-tailed deer)	x		R	VC	1			1



## HERPETOFAUNA CHECKLIST

## MT. HOOD PLANNING UNIT

## SPECIES

	Obsr'd	Expect to Occur	Seas- onal Status	Obser- vation Index	Wildl. Viewing Value Index	Preda- tor to Forest Pests	Game Animal	Wildl. Value Indi- cator
<u>Caudata</u>								
<u>Ambystoma gracile</u> (northwestern salamander)	x		R	C	3			3
<u>A. macrodactylum</u> (long-toed salamander)		x	R	?	4			4
<u>Dicamptodon ensatus</u> (Pacific giant salamander)	x		R	VC	2			2
<u>Rhyacotriton olympicus</u> (Olympic salamander)	x		R	VC	2			2
<u>Taricha granulosa</u> (rough-skinned newt)	x		R	VC	1			1
<u>Plenthodon dunni</u> (Dunn's salamander)	x		R	C	3			3
<u>P. vehiculum</u> (western red-backed salamander)		x	R	?	4			4
<u>Ensatina eschscholtzi</u> (Eschscholtz's salamander)	x	x	R	R	4			4
<u>Batrachoseps wrighti</u> (Oregon slender salamander)		x	R	?	4			4
<u>Aneides farreus</u> (clouded salamander)		x	R	?	5			5
<u>Salientia</u>								
<u>Ascaphus truei</u> (tailed frog)	x		R	VC	5			5
<u>Bufo boreas</u> (western toad)	x		R	C	1			1
<u>Hyla regilla</u> (Pacific tree frog)	x		R	C	2			2
<u>Rana catesbeiana</u> (bullfrog)		x	R	?				
<u>R. pretiosa</u> (spotted frog)			R	VC	5			5
<u>R. aurora</u> (red-legged frog)	x	x	R	?				
<u>Squamata</u>								
<u>Sceloporus occidentalis</u> (western fence lizard)		x	R	U				
<u>Eumeces skiltonianus</u> (western skink)	x		R	U	4			4
<u>Gerrhonotus coeruleus</u> (northern alligator lizard)	x		R	U	3			3
<u>Charina bottae</u> (rubber boa)		x	R	?				
<u>Coluber constrictor</u> (racer)	x		R	?				
<u>Thamophis ordinoides</u> (northwest garter snake)		x	R	?				
<u>T. sirtalis</u> (common garter snake)	x		R	VC	1			1

# FISHES OF THE MT. HOOD PLANNING UNIT

<u>SPECIES</u>		<u>STATUS</u> <sup>1/</sup>
<u>Salmo gairdneri</u>	(Rainbow trout) <sup>2/</sup>	X
<u>S. clarki</u>	(Cutthroat trout)	X
<u>S. trutta</u>	(Brown trout)	X
<u>Salvelinus fontinalis</u>	(Brook trout)	X
<u>S. malma</u>	(Dolly Varden)	X
<u>Oncorhynchus kisutch</u>	(Coho salmon)	X
<u>O. tshawytscha</u>	(Chinook salmon)	X
<u>O. nerka</u>	(Sockeye salmon) <sup>3/</sup>	X
<u>Prosopium williamsoni</u>	(Mountain whitefish)	X
<u>Ptychocheilus oregonensis</u>	(Northern squaw fish)	0
<u>Entosphenus tridentata</u>	(Pacific lamprey)	X
<u>Cottus rhotheus</u>	(Torrent sculpin)	X
<u>Rhinichthys cataractae</u>	(Longnose dace)	X
<u>Catostomus macrocheilus</u>	(Largescale sucker)	X
<u>C. Platyrhynchus</u>	(Mountain sucker)	0
<u>Cyprinus carpio</u>	(Carp)	0
<u>Lampetra richardsoni</u>	(Western brook lamprey)	X
<u>Perca flavescens</u>	(Yellow perch)	0
<u>Thaleichthys pacificus</u>	(Eulachon)	0

<sup>1/</sup> The symbol 'X' are known and '0' are suspected to inhabit the waters of the Mt. Hood Planning Unit.

<sup>2/</sup> Consists of both fresh water and anadromous (steelhead) forms, both of which are present on the Forest.

<sup>3/</sup> Lacustrine form is known as Kokanee. Only Kokanee are present on the Forest.



## TITLE 2400 - TIMBER MANAGEMENT

### 2405.14 - Wildlife Management

#### Mt. Hood National Forest Dead and Defective Tree Management Plan

Introduction. The Mt. Hood National Forest is currently providing habitat for at least 70 wildlife species which are known to be heavily dependent on dead and defective trees during part or all of their life cycle. The list includes 42 species of birds, 17 species of mammals, seven species of reptiles and four species of amphibians.

The Mt. Hood National Forest is comprised of approximately 1,059,350 acres, of which an estimated 1,048,637 acres (94%) is capable of producing snag habitat. Of these lands capable of producing dead and defective trees suitable for cavity users, 824,204 acres (79%) is classified as commercial forest lands (CFL).

New timber management plans calling for shortened rotations and multiple commercial and precommercial entries into the stands could eliminate or seriously restrict needed dead and defective tree habitat from forming or persisting. Past harvesting strategies indicate a high potential for reducing most cavity using species to less than 20% of their biological potential, a number which has been determined to be less than that required for self-sustaining populations.

Because these cavity users are an integral part of the National Forest ecosystems, and because they provide high values for recreation, research and forest health, we must, as stewards of the National Forest, insure that they are not eliminated from forest ecosystems.

Goal. To meet or exceed the habitat requirements necessary to maintain self-sustaining, stable populations of native wildlife species which are heavily dependent on dead and defective trees, both standing and on the forest floor.

Objectives. The following plan objectives, along with the "Guidelines for Managing Dead and Defective Trees on Area 6 Forests" will be used to accomplish the above goal on the Mt. Hood National Forest.

1. Douglas-fir, true fir, mixed conifer vegetative zones. Manage dead and defective tree habitat, well distributed, for the 60% biological potential level of primary excavators in Douglas-fir, true fir and mixed conifer stands on CFL. The maximum size area void of snag habitat management at a given time should not exceed 70 acres.
2. Lodgepole pine vegetative zone. Manage dead and defective tree habitat, well distributed, for the 60% biological potential level of primary excavators in lodgepole pine dominant CFL. The maximum size area void of snags habitat management at a given time should not exceed 70 acres.
3. Ponderosa pine vegetative zone. Manage dead and defective tree habitat, well distributed, for more than 60% biological potential level of primary excavators in ponderosa pine and ponderosa pine dominant CFL.

The maximum size area void of snags habitat management at any given time should not exceed 40 acres.

4. Manage dead and defective tree habitat for the 80% biological potential level on commercial forest lands as follows:

- a. Within one chain (20M) or more of a potable water source (annual or perennial) in lodgepole pine dominant CFL.
- b. Within three chains (60M) or more of a potable water source (annual or perennial) in ponderosa pine or ponderosa pine dominant CFL.
- c. Within established Streamside Management Units and Zones established by the Fish Habitat Management Policy with intermediate or full protection designation.
- d. Within five chains (101M) or more of ecotonal openings,\* one acre or more in CFL.

Snag densities to achieve the 80% biological potential in a, b, c and d above may be combined with objectives 1 through 3 to meet desired biological potentials.

5. Inventorying and marking of dead and defective trees (or other wildlife leave trees) will be accomplished on each timber management area proposed for treatment.

6. Manage for MM fuels level of down and defective material, except in fuelbreaks and other such areas where MM levels cannot be met. This is to include two or more dead and down trees each containing 40 or more cubic feet per acre in Douglas-fir, true fir, mixed conifer and ponderosa pine vegetative zones.

7. Environmental analysis reports (EARs) related to timber management programs will provide descriptions of:

- a. Numbers of dead or defective trees to be managed for.
- b. Size (height and dbh).
- c. Kinds (conifer or deciduous), standing or down.
- d. Areas to be managed for dead and defective trees.
- e. Other pertinent data necessary to explain the dead and defective tree management plan for the area being considered by the EAR.

\*Hydrosere (marsh, wet meadow, bogs) and/or grassy/shrub openings.



ASSESSMENT OF ALTERNATIVES - RECREATIONA. Changes From Existing Situation

1. Quality of recreation experiences based on expected population user levels.

<u>Activity</u>	<u>Alternative B</u>	<u>Proposed</u>	<u>Alternative B</u>
Skiing (access of facilities)	Best	Intermediate	Best
Snow activity	Worst	Best	Intermediate
Fishing	Worst	Intermediate	Best
Hunting	Worst	Intermediate	Best
Camping	Worst	Intermediate	Best
Drive for pleasure	Worst	Best	Intermediate
Scenic viewing	Worst	Intermediate	Best
Winter Sports	- - - - -	No differences	- - - - -
Mountaineering	Worst	Intermediate	Best
Resort	Intermediate	Best	Worst
Golf	Intermediate	Best	Worst
Picnicking	Worst	Intermediate	Best

2. Relative visitor day use expected 1/

Skiing	Highest	Intermediate	Lowest
Snow activities	Lowest	Highest	Intermediate
Fishing	Lowest	Intermediate	Highest
Hunting	Lowest	Intermediate	Highest
Camping	Highest	Intermediate	Lowest
Drive for pleasure	Intermediate	Highest	Lowest
Scenic viewing	Lowest	Intermediate	Highest
Water sports	Highest	Intermediate	Lowest
Mountaineering	Lowest	Intermediate	Highest
Resort	Highest	Intermediate	Lowest
Golf	Intermediate	Highest	Lowest
Picnicking	Intermediate	Highest	Lowest

3. Proportion of recreation uses. All of the alternatives provide a heavy proportion of day use/overnight use opportunities due to the proximity of the area to large populations.

The highest proportion of overnight facilities would be provided by Alternative A, although quality of recreation would be reduced. Alternative B would give the greatest proportion of day use.

1/ See Summary tables for numbers.

#### 4. Availability of recreation facilities.

<u>Activity</u>	<u>Alternative A</u>	<u>Proposed</u>	<u>Alternative B</u>
Skiing	Most	Intermediate	Least
Snow activities	Intermediate	Most	Least
Fishing	- - - - -	No difference	- - - - -
Hunting		"	
Camping		"	
Drive for pleasure	Intermediate	Most	Least
Scenic viewing	- - - - -	No difference	- - - - -
Water sports		"	
Mountaineering		"	
Resort	Most	Intermediate	Least
Golf	Intermediate	Most	Least
Picnicking	Intermediate	Most	Least

#### B. "Spinoff" effects of alternatives.

##### 1. Overcrowding or underuse of facilities.

The Proposed Plan would have the least impact because it would be the most efficient administratively. Alternative B would be intermediate while Alternative A would be worst.

##### 2. Diversion or encouraging use to avoid overcrowding.

The Proposed Plan best encourages use where it can be accommodated.

##### 3. Contribution to local economics.

Because the local recreation economy depends on a retention of the present attractions and amenities of the area, Alternative B contributes the most to a healthy long term economy.

<u>Summary of "Spinoff" Effects</u>	<u>Alternative A</u>	<u>Proposed</u>	<u>Alternative B</u>
Facility overcrowding	Worst	Best	Intermediate
Concentration of overcrowding	Worst	Most	Least
Contribution to local economy	Least	Intermediate	Most

Administrative problems resulting from various alternatives. The most complex alternative to administer would be Alternative B. The least complex would be the Proposed Plan. Concentration of people simplifies and makes for efficient use of services until the concentration becomes too great. The Proposed Plan would improve administration over the present situation.



### Administrative Efficiency Comparisons

EXISTING SITUATION		O.K.
ALTERNATIVE A		Fair
PROPOSED PLAN		Best
ALTERNATIVE B		Worst

#### Positive Effects of the Various Land Allocations

Alternative A - Local residents dominate the recreation scene. Greater density of population makes more elaborate resort type recreation facilities feasible. A wider range of recreation opportunities is available.

Proposed Plan - Recreation opportunities for the greatest diversity of people from all economic classes. Public benefits maximized. Opportunity for urban access to benefits of outdoor recreation with quality reasonably sustained.

Alternative B - Quality of recreation greatest. All present values retained with little risk of irreversible damage to the recreation attraction.

RECREATION SYSTEM PLANNING  
RECREATION MANAGEMENT COMPOSITE PLAN  
MT. HOOD WINTER RECREATION COMPONENT

ENVIRONMENTAL CAPACITY FOR WINTER SPORTS

MT. HOOD PLANNING UNIT

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3-14-77 Date

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## C O N T E N T S

A.	INTRODUCTION . . . . .	1
	1. Background	
	2. Assumptions	
	3. Objectives	
	4. Method	
B.	PRESENT SITUATION . . . . .	2
C.	CALCULATION OF ENVIRONMENTAL CAPACITY BY THREE METHODS . . . . .	3
	1. Area Projection	
	2. Density Analysis	
	3. Transportation Analysis	
D.	CAPACITY SUMMARY . . . . .	6
E.	CONCLUSIONS . . . . .	7

A. INTRODUCTION

1. Background. The need to determine a capacity that will preserve the quality of recreation experience generated the following analysis. Recreation facilities should be developed within the capacity limits prescribed in the Recreation Composite Plan. The winter component is addressed in this document.

Additional skiing facilities are intended to be provided by expanding existing areas. But first, it is necessary to evaluate the capability and desirability of using these adjacent lands.

The following questions have been asked, prompting this report:

- a. At what density should the additional areas allocated to winter recreation be developed?
- b. What is the assigned capacity of the total area for all winter recreation?
- c. Of the total assigned capacity, what proportionate share is allocated to the various winter activities?

The analysis contained in this report addresses these questions.

2. Assumptions

- a. For planning purposes, consider that all winter recreation activities will experience peak use on the same days. Sightseers, snowplayers, trail skiers, snowshoers, mountaineers, etc. all converge on the mountain on the same days proportionately.
- b. Transportation to the mountain will be over existing routes. Improvements to the highways are at the level prescribed in the Mt. Hood Plan, Preferred Alternative, Draft EIS.
- c. Cooper Spur is not considered a significant element at this time in the determination of environmental capacity for the planning unit.
- d. Assume that sightseers and snowplayers travel during the middle of the peak winter days (before dark) and skiers travel before and after nonskiers. Assume that cross-country skiers travel the same time downhill skiers do.
- e. Overnight facilities within the planning unit must increase markedly to have any significant effect on capacity.



3. Objectives. The purpose of this analysis is to determine the environmental capacity for winter sports activity. Environmental capacity is a theoretical maximum level of human activity attainable without compromising values which make up the natural attributes of a given unit of land.

Capacity for winter recreation is a function of (1) business opportunity for those who provide allied services, (2) environmental quality and (3) visitor satisfaction. When these elements are balanced and optimized, the optimum or desirable level of use has not been exceeded. We can easily recognize when capacity has not been exceeded and when it has been exceeded, after the fact. The difficult task is to predict when use levels will cause capacity to be exceeded.

Thus, the nature of this task is to predict when use levels would cause the natural attributes which make the Mt. Hood composite attractive to recreationists to be significantly diminished.

4. Method. Three predictions of maximum levels of use are presented. The first is a projection of current densities for Mt. Hood areas. The second reaches out to other areas, a desirable density factor is recommended and applied to the land area allocated to this use in the land use planning process. The third method is a traffic analysis based on some assumptions, plans and trends in transportation.

#### B. PRESENT SITUATION

The existing designed capacity or desirable level of use represents the second from the highest day of the ski season. At these observed levels, a balance is achieved between user satisfaction, business opportunity and protection of land resources with the existing facilities.

The number of persons at one time at the present desirable level of use is tabulated for all winter activities.

	<u>Persons at one Time</u>
Downhill Skiing	
Mt. Hood Meadows	3500
Multotorpor Ski Bowl	2800
Timberline	1800
Cross-Country Skiing and Snowshoe	<u>1400</u>
Skiing Subtotal	(9500)
Sightseeing	3500
Snowplay	<u>800</u>
Nonskiing Subtotal	(4300)
TOTAL	13,800

## C. CALCULATION OF ENVIRONMENTAL CAPACITY BY THREE METHODS

### Method 1 - Area Projection

Table 1 - Present design capacity of existing areas extended to additional areas allocated in proposed alternative of draft Mt. Hood land use plan by area. SAOT - Skiers at one time.

	<u>Present Design Capacity (SAOT)</u>	<u>Present (net) Area</u>	<u>Additional (net) Allocated Area</u>	<u>Present &amp; Allocated Area</u>
Mt. Hood Meadows	3500	610	2620	3220
Multotorpor Ski Bowl	2800	407	177	584
Timberline	<u>1800</u>	<u>430</u>	<u>290</u>	<u>720</u>
TOTAL	8100	1447	3087 (*2161)	4524 (*3608)

\*Reduced by 30% to allow for conflict resolution.

The area allocated to skiing expansion is reduced by 30% in order to recognize differences between the land features. Some of the factors causing the reduction in area actually available are:

- a. Visual requirements.
- b. Conflicts with summer recreation.
- c. Soil, water and geologic characteristics.
- d. Road access restrictions.
- e. Wildlife values.

When the present areas were developed, for the most part, full consideration for such conflicts were not fully recognized. In the future, some desirable ski terrain could be ruled out due to onsite evaluations by various resource specialists such as landscape architects and soil scientists.

Let:

C<sub>1</sub> = present design capacity in skiers at one time (SAOT) for existing areas.

C<sub>2</sub> = potential design capacity in skiers at one time (SAOT) for existing areas and allocated expansion of areas now under permit.

A<sub>1</sub> = present area increase used for skiing at existing areas.

A<sub>2</sub> = net potential acres allocated for area expansion.

And let:

$$\frac{C_1}{C_2} = \frac{A_1}{A_2}$$



Where:

$$\begin{aligned}C_1 &= 8100 \\C_2 &\text{ is unknown} \\A_1 &= 1447 \\A_2 &= 3608\end{aligned}$$

Then:

$$\frac{8100}{C_2} = \frac{1477}{3608}$$

$$1447 C_2 = 29,224,800$$

$$C_2 = 20,197 \text{ SAOT}$$

Method 2 - Density Analysis. Ascertain desirable density of skiers per acre and apply these densities to the areas allocated for downhill skiing expansion in the Mt. Hood Land Use Plan.

Desirable level of use for a recreation composite is described in terms of persons at one time (PAOT) capacity, something less than the peak day of use. As a starting point, the tenth highest day is used to determine number of people and their quality of experiences.

When we allow capacity to be excluded on nine days, we can accept a higher number of PAOT on the peak day.

For the ski areas at Mt. Hood, the ten highest days are ranked and displayed in Table 2.

Table 2 - Record of skiers at one time (SAOT) for ten highest days at Timberline and Mt. Hood Meadows. The 1974-75 season for Mt. Hood Meadows and the 1975-76 season for Timberline were selected because they represent their peak seasons in the past ten years.

<u>Mt. Hood Meadows</u>		<u>Timberline</u>	
<u>SAOT</u>	<u>Date</u>	<u>SAOT</u>	<u>Date</u>
4389	12/8/74	2347	1/3/76
3739	2/2/75	1806	1/24/76
3277	2/22/75	1702	1/2/76
3111	2/1/75	1634	12/27/75
3109	12/29/74	1593	2/21/76
3079	12/28/74	1493	1/17/76
3077	2/23/75	1347	1/1/76
2999	1/11/75	1320	2/22/76
2955	11/29/74	1274	3/6/76
2828	2/16/75	1229	1/10/76

By ranking the days in descending order, we can determine what the use level would be on the peak day if we allowed desirable level of use to be

excluded on nine days. This is done from graphical analysis. When this is done, peak use level assigned to the three Mt. Hood areas is:

Mt. Hood Meadows	5300
Multotorpor Ski Bowl	4200
Timberline	2800

In Table 3, several ski areas which experience use in excess of design capacity on approximately ten days per year are compared with the three Mt. Hood areas. The peak use figures for the Mt. Hood areas are hypothetical figures derived from the graphical analysis discussed above. This has been done so that all areas are on a common base.

Table 3 - Comparison of ski areas which experience skiers use greater than design capacity on approximately ten days annually (note that Oregon areas now experience less skier use but peak figures are adjusted to reflect the hypothetical nine days when capacity would be expected).

<u>Area Name</u>	<u># Lifts</u>	<u>Area Developed</u>	<u>Peak Use (SAOT)</u>	<u>SAOT/Lift</u>	<u>SAOT/Acre</u>
Heavenly Valley	14	2800	9200	657	3.3
Sierra Ski Ranch	5	800	3200	640	4.0
Mammoth Mountain	22	2040	12500	568	6.1
Average, Three California Areas 1974-75 Season				621	4.5

\*Source: Winter Sports Specialists, Eldorado National Forest, Robert K. Henley and Inyo National Forest, John Harmening

Mt. Hood Meadows	5	610	4400	880	7.2
Multotorpor Ski Bowl	4	407	3600	900	8.8
Timberline	3	430	2200	733	5.1
Average, Three Mt. Hood Areas				838	7.0

In the judgment of the writer based on experience with the above areas and allowing for differences in terrain, a desirable skier per acre density would be in the 4.0 to 5.0 skiers per acre range.

The main difference between the Mt. Hood areas and the California areas is the frequency distribution of the heavy use days.

Using gross area available for expansion, the total area containing ski improvements allocated within the Mt. Hood Planning Unit is 4524 acres. Based on the above densities, the range of desirable capacity is 18,096 SAOT capacity represents the 15th from the highest day and the 22,620 SAOT capacity represents the fifth from the highest day.

3. Capacity of the Transportation System. The only record reflecting peak winter weekend highway traffic is a division of highways count in February 1971. These figures were obtained on Highway 26 west of Government Camp. Counts were made on both Saturday and Sunday. The weather was



favorable for winter recreation and for travel. On an hourly basis, the peak traffic was:

Eastbound, 12-1 p.m.	524 vehicles per hour
Westbound, 4-5 p.m.	1195 vehicles per hour
5-6 p.m.	1180 vehicles per hour

The period 4-6 p.m. accounted for the bulk of the westbound traffic. All other hours showed much less traffic.

Given that the present traffic pattern consists of a 10:1 ratio of cars to buses, 35 mph average speed with 3.2 persons per auto and 32 persons per bus, the 1200 vehicles per hour produces a capacity of 3840 passengers per hour.

Using the above traffic pattern but assuming that the highway improvements proposed in the Mt. Hood Planning Unit for U.S. 26 are completed, the highway capability is increased to 5120 passengers per hour.

Provided that a bus to auto ratio of 3:1 is attainable, the highway could handle a westbound load of 7200 persons per hour by bus and 2300 by auto westbound on Highway 26. By allowing for eastbound traffic via Highway 35 and 180N, an additional 600 autos per hour can be handled. representing 1920 passengers all totalling 11,420 passengers per hour.

The peak traffic westbound occurs for two hours so that the highway can handle 22,840 persons within that time provided that the bus:car ratio changes from 10:1 to 3:1. Should the bus:car ratio remain at 10:1, the highway can handle 14,080 persons on the improved highway using both westbound on U.S. 26 and eastbound on Highway 35.

#### D. CAPACITY SUMMARY

A graphical presentation of the three capacity determination methods is displayed in Figure 1.

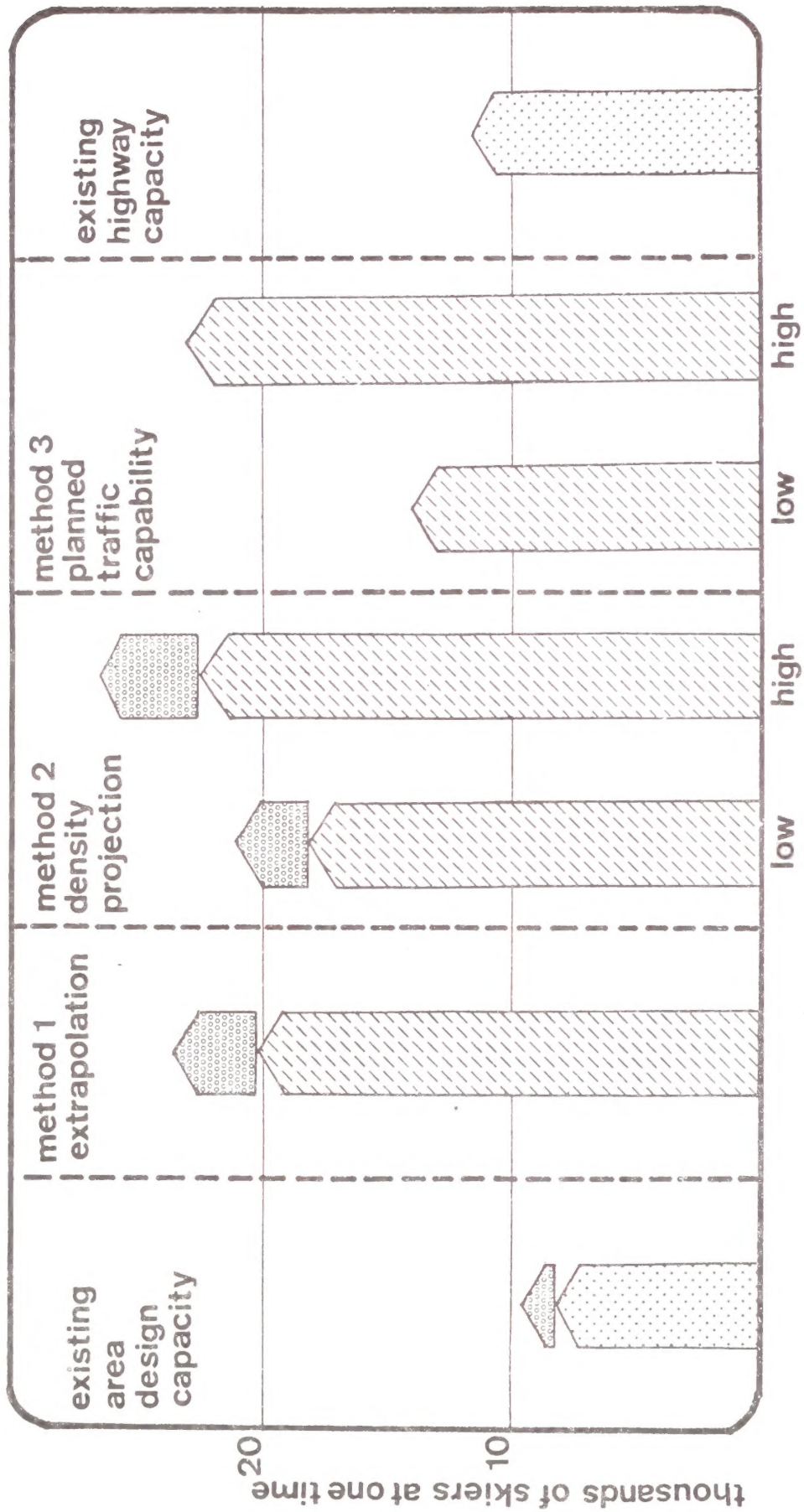
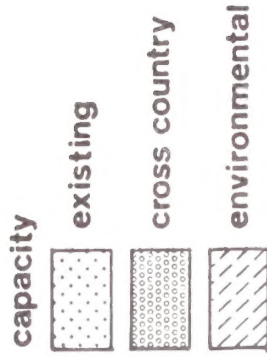
Table 4 - Summary of Capacity Analysis, Winter Sports (in persons at one time).

	Present* Capacity	Projected				
		Method 1	Method 2		Method 3	
		Area Projection	Density Low	Analysis High	Transportation Low	High
Skiing, devlpd	8100	20200	18100	22600	--	--
Dispersed						
winter travel	1400	3300	--	--	--	--
Snowplay	800	1400	--	--	--	--
Sightseers	3500	5600	--	--	--	--
TOTAL	13800	30500	--	--	14100	22800

figure 1

# future skiing capacity

3 methods compared to existing capacity





## E. CONCLUSIONS

1. An environmental capacity of 30,500 winter visitors at one time is recommended. This capacity is broken down to 20,200 downhill skiers, 3300 dispersed winter travel, 1400 snowplay and 5600 sightseers. This represents a planning level which may be exceeded on nine days seasonally.
2. An increase of 121% for any winter activity or for any facility expansion would be within acceptable limits for planning purposes.
3. Existing ski areas, by utilizing planned expansion areas, can meet all the projected capacity. No new ski areas are necessary.
4. The highway system can meet the additional capacity only if more visitors are induced to use buses or otherwise increase the number of people per vehicle.
5. Facilities may be overtaxed on a limited number of days but the overall adverse environmental effects are lessened by scaling facilities down to handle something less than the maximum anticipated.

SUMMARY OF CULTURAL  
RESOURCES IN THE  
MT. HOOD PLANNING UNIT

1800-1850

<u>Site Name</u>	FS	<u>Own</u>	Pvt	<u>Age</u>		Fair	<u>Condition</u>			Unkwn
		Cty		Hst	Pre		Deter	Site		
Rock Corral	BLM			X					X	
Hudsons Bay Cabin			X	X					X	
Barlow Road	X	X	X	X			X			
Browlog & Stringer	X			X			X			
Meeting Rock	X			X			X			
Laurel Hill	X			X			X			
Summit Mdw.-etc.			X	1850-1930					X	
Pioneer Woman's Grave	X			X		X				
Pioneer Meeting Site			X	X					X	

1850-1900

Cloud Cap Inn	X			X		X				
Cloud Cap Road	X			X			X			
China Fill	X			X		X				
Mt. Hood Lodge			X	X					X	
Tilly Jane Camp	X			X		X				
Marmot			X	X			X			
Tollgate	X			X					X	
Pioneer Cemetary			X	X		X				

1900-1930

Swim			X	X					X	
Upper Sandy Guard Station	X			X		X				
Zigzag Ranger Station	X			X		X				
Camp Blossom	X			X					X	
Mt. Hood L.O.	X			X					X	
Silcox Hut	X			X		X				
Gov't Camp Area	X			X					X	
Timberline Cabin	X			X			X			
Mt. Hood Loop Hwy	X	X	X	X			X			
Paradise Park Trail	X			X		X				
Crater Rock Shelter	X			X					X	
Snowshoe Club Bldg.	X			X		X				
Multorpor Jump	X			X		X				
Ski Bowl Warming Hut	X			X		X				



1900-1930 con't.	FS	<u>Own</u> Cty	Pvt	<u>Age</u> Hst	Pre	Fair	<u>Condition</u> Deter	Site	Unkwn
Rhododendron Inn			X	X				X	
Summit Ski Area	X			X		X			
East & West Leg Rds	X			X		X			
<hr/>									
1930-1944									
W.P.A.									
CCC Camps:									
Devils Mdw	X			X				X	
E. Zigzag Mtn	X			X				X	
Summit Mdw			X	X				X	
Snowbunny Lodge	X			X		X			
Timberline Lodge	X			X		X			
Timberline Trail	X			X		X			
Stone Shelters:									
McNeil Pt.	X			X		X			
Cairn Basin	X			X		X			
Cooperspur	X			X		X			
Gnarl Ridge	X			X			X		
Paradise Park	X			X		X			
Elk Cove	X			X			X		
Mt. Hood Mds.	X			X			X		
Wood Shelters:									
Bald Mtn	X			X				X	
Ramona Falls	X			X				X	
Elk Mdws	X			X		X			
Tollgate Camp	X			X		X			
Camp Creek Camp	X			X		X			
Pioneer Bridle Trail	X			X		X			
<hr/>									
Date Unknown									
Initialed Trees									
Timberline	X			X		X			
Tamanawas Falls	X			X		X			
Bennett Pass Rd.	X			X		X			
Homestead Near									
Tamarauas Falls	X			X			X		
Mine Near									
Robinhood C.G.	X			X			X		

km

	<u>Own</u>			<u>Age</u>		<u>Condition</u>			
	<u>FS</u>	<u>Cty</u>	<u>Pvt</u>	<u>Hst</u>	<u>Pre</u>	<u>Fair</u>	<u>Deter</u>	<u>Site</u>	<u>Unkwn</u>
<u>Other</u>									
<u>Monuments</u>									
Mazama Monument at									
Paradise Park		X				X			
Barlow Pass		X				X			
Rhododendron						X			
Gov't Camp		X				X			



ASSESSMENT - HIGHWAYS - STATE SYSTEM

Highway Capacity and Design Improvements. Each of three alternative plans discussed in this FEIS propose some degree of population growth and increased recreational use. The sizes and distributions of resident populations and the locations and types of recreational sites determine transportation needs for the area for each plan. Based on population allocations and projections of recreational use proposed in each plan, traffic volumes were estimated for the Cherryville/Warm Springs section of the Mt. Hood Highway (U.S. 26) and are displayed in Table 2.

Analysis of traffic volumes was concentrated on the Mt. Hood Highway from Cherryville/Warm Springs, since this is the highway section in the Mt. Hood Planning Unit which would receive the greatest impact from any proposed development within the area.

Traffic volumes on the other state highway sections (Highway 35 and Timberline Highway) in the Planning Unit would not even begin to approach existing design capacities under any of the alternative plans. Therefore, they will not be given further detailed consideration in this section. No attempt was made to assess in detail, the impact on highways outside the Planning Unit.

Table 2 shows that severe overloads will occur on all segments of the Mt. Hood Highway assuming Alternative A (present direction), even with major improvements on the highway. Analysis of the Proposed Plan indicates traffic volumes on the Forest boundary to Timberline Highway section would slightly exceed the improved two lane capacity, assuming the higher limit of 22,000 residents in traffic projection figures. Traffic generated considering the lower growth forecast is below the capacity of the existing facility except for the approximately 3.5 mile section between Wildwood and the Forest boundary. Improved capacity would be needed at the higher limit if the projected population range were approached. Traffic volumes on the Forest boundary to Timberline Highway segment however, would be only slightly above the existing capacity.

The above analysis assumes no increase in public transportation for any alternative future. Increases in public transit would allow downward adjustments in projected traffic volumes and therefore, reduce needs for highway expansion for each alternative plan.

Right-of-way Requirements. The highway design improvements noted above for each alternative plan generally would require additional highway right-of-way. Table 1 indicates a very rough estimate of the number of acres required for each section and the terrain encountered and impacted.

Mass Transportation. One of the possible ways in which the traffic impacts of the plan allocations can be mitigated is by means of a proportional increase in mass transportation -- most likely busses. It would be necessary to initiate a strong program of incentives for expanded use of mass transit.

Section	Alternative "A"	"Proposed" Plan "Low"	"High"	"Low"	Alternative "B" "High"
Cherryville-Wildwood Assumes 15' R/W per lane added	<u>30</u> acres Rural Residential	0	0	0	0
Wildwood-Welches Rd. Assumes 200' average width, previously acquired R/W.	Uses <u>80</u> acres Already acquired on north side Dwyer Corridor.	<u>80</u> acres already acquired north side Dwyer Corridor.	Uses <u>80</u> acres already acquired Dwyer Corridor.	0	<u>80</u> acres already acquired north side Dwyer Corridor
Welches Rd.-Rhododendron Assumes 15' new R/W per lane added.	<u>3</u> acres Commercial frontage & forest	<u>3</u> acres Commercial frontage & forest	<u>3</u> acres Commercial frontage & forest	0	0
Rhododendron-Timberline Hwy. Assumes 150' previously cleared R/W & forest.	<u>90</u> acres Some previously cleared & old growth forest.	0-90 acres	<u>90</u> acres Some previously cleared & old growth forest.	0	0
Total new R/W (acres) used	203	83-173	173	0	80

Table 1. Approximate State Highway (U.S.26) right-of-way requirements anticipated for each alternative plan. Types of land affected is indicated.



HIGHWAY CAPACITY ANALYSIS  
MT. HOOD HIGHWAY (US 26)  
MOUNT HOOD PLANNING UNIT

Revised March 7, 1977

<u>Highway Segment</u>	<u>1975 ADT</u>	<u>Existing Capacity</u>	<u>Improved 2-Lane Capacity*</u>	<u>4-Lane Capacity</u>	<u>Capacity Needed In Proposal</u>	
					<u>Lo Est.</u>	<u>Hi Est.</u>
Alder Cr. - Wildwood (M.P. 33.23 - 38.96)	5,700	26,200 (4-lanes)	-	26,200	13,700 (4-lanes existing)	16,300 (4-lanes existing)
Wildwood - Forest Boundary (M.P. 38.96 - 42.25)	5,500	6,500 (2-lanes)	11,000	26,700	11,400 (2-4 lanes)	13,900 (4-lanes)
Forest Boundary - Rhododendron (M.P. 42.25 - 44.08)	3,800	7,800 (2-lanes)	8,700	22,200	8,400 (2-lanes)	10,000 (2-4 lanes) #
Rhododendron - Timberline Hwy. (M.P. 44.08 - 54.22)	3,400	6,300 (2-lanes)	7,500	20,800	7,800 (2-4 lanes) #	9,400 (4-lanes)
Timberline Hwy. - Warm Springs Hwy. (M.P. 54.22 - 57.45)	2,800	5,800	-	20,800	5,300 (2-lanes)	5,800 (2-lanes)

\* "Improved 2 - Lanes" Assumes Two 12-Ft. Lanes with 6 to 8-Foot Paved Shoulders and 100% Sight Distance (In some sections this would require a passing or turning lane).

# NOTE: The Capacity Determinations Assume Average Traffic Speeds of 35-40 MPH. Some of the 4-Lane Design Recommendations Could be Reduced to Improved 2-Lane if a Lower Level of Service is Acceptable.

Source: Oregon State Department of Transportation

## EXHIBIT P

### Land Ownership Adjustment

Clackamas County has no plans for adjustment of land presently owned by the county. According to John McIntyre, Director of Public Works, the county would definitely be interested in reviewing any proposal that was initiated by a landowner.

In Section 36, T2S, R7E, W.M. 590 acres are owned by Clackamas County, ten acres are owned by G. Grampas, and 40 acres are owned by I. Moody. There is a possibility this might become part of the expanded Mt. Hood Wilderness. This is one reason the Forest Service would like to acquire this section through exchange and/or purchase procedures. I. Moody has contacted the Forest Service and is interested in an exchange or direct purchase. Publishers Paper Company has indicated they would be interested in an exchange with the Forest Service to consolidate ownership. This would include lands outside the Mt. Hood study area also. Publishers land to be acquired by the Forest Service in an exchange would be the W<sub>1/2</sub>, Section 16, T2N, R7E, W.M. In T2N, R7E, W.M. Forest Service land available for exchanging would be that portion of NE<sub>1/4</sub>, Section 29, W<sub>1/2</sub> E<sub>1/2</sub>, Section 22 and W<sub>1/2</sub> NW<sub>1/4</sub>, Section 23. Another land exchange possibility involves a portion of Section 24 adjacent to the road and BPA powerline. A decision on this will be dependent upon the determination of the range line between R7 and R8E. An exchange has been proposed for Section 16, T3S, R7E. The land northeast of Salmon River road is owned by a development firm but they have expressed a desire to sell or exchange this land to the Forest Service. The remainder of the Section southwest of Salmon River is involved in an exchange that is currently being evaluated. The private land in the Enola Hill area in Sections 12 and 13, T3S, R7E and Sections 7 & 18, T3S, R8E has also been offered to the Forest Service for exchange or purchase. In T3S, R8<sub>1/2</sub>E, the private land in Section 35 has been proposed for an exchange, as well as the Summit Meadows property in Section 25. Hood River County and the Forest Service have an exchange in the proposal stage that would transfer ownership of Hood River County land in Section 32, T1S, R10E; Sections 5, 6, 7 and 8 in T2S, R10E to the Forest Service. The other parcels to be exchanged are outside of the Mt. Hood Study Area. In all of the above proposed exchanges an environmental analysis report (EAR) must be approved for each project. The Summit Meadows exchange has an approved EAR. EARs for the other projects are programmed to be completed over the next (4) four years.

Land adjustment involving National Forest land can be accomplished under any of the following methods:

#### TYPES OF EXCHANGES:

Land for Land (Bipartite) - Non federal land is conveyed to U.S. in exchange for government land.

Land for Timber - Two methods.

Direct cut (bipartite) - U.S. grants the right to cut National Forest timber in exchange for land conveyed to it. It could be timber already under a sale contract or a new timber sale is made. We prefer the first method as competitive bidding establishes the stumpage values.

Tripartite - If proponent in exchange is unable to convert the timber into cash. In this case timber is designated within a going or prospective timber



sale area. The timber sale purchaser pays for the cut designated timber according to his contract. His payments are deposited to the timber sale deposit account and transferred periodically to the land exchange suspense account. These earnings are then available for delivery to the exchange proponent when title to the offered land has been accepted.

If for any reason the exchange is not finally completed, the collections are transferred to the National Forests fund. Because these exchanges involve the landowner, government and timber purchaser, they are termed tripartite.


Purchases - Appropriated funds; LWC Funds

Donations - Underhill site (example).

The land adjustment process, whether it be land exchange, purchase or a donation, involves most of the steps noted below:

#### LAND EXCHANGE PROCEDURES:

##### Process



- Informal Offer
- Minerals Claim Search
- Preliminary Title Insurance
- Justification Report and EAR
- Project Plan (R6-5460-6)
- Examination - Timber Appraisal
- Land Appraisal
- Formal Exchange Offer
- (Oregon Board of Forest Conservation-Weeks Act Exchange)
- Notification of County (IES)
- Exchange Report
- Regional Office Approval
- Washington Office Approval
- (National Forest Reservation Commission-Weeks Act Exchange)
- Notification to Proponent
- Publication Notice of Exchange
- Protest and Appeals
- Deed Preparation (Offered Land)
- Deed Executed (Offered Land)
- Deed Recorded
- Title Insurance
- Certificate of Possession Certificate of Use and Consent
- Title Approval (by GC or AG)
- Deed/Patent (selected land)
- Deed to Proponent (selected land)
- Deed Recorded
- County Tax Official Notified
- Close Case

## SILVICULTURAL GUIDELINES FOR VISUAL RESOURCE MANAGEMENT

The following broad prescriptions have been prepared to provide a general guide to the maximum timber harvest impact permissible on the Visual Resource. Other solutions to specific cases are possible with the assistance of landscape architects.

Middleground - Partial Retention. Single or two stage shelterwood with initial entry on 1/3 of area.\* No more than 2/3 of BA removed. Prior to overwood removal, reproduction must be of sufficient height and density to mask soil color and provide tree texture (6-8' tall).

Group selection (generally five acres) is permissible on up to 1/3 of area. Reproduction should be about ten feet tall before adjacent areas are regeneration cut.

A combination of the two cutting methods may be highly desirable.

(Cut Calculated - 86% of full yield if loggable.)

Middleground - Retention. Group Selection (generally five acres) with no more than 20% of area to be removed in each 20 year period.

Single or two stage shelterwood can be used on up to 15% of area in a 20 year period with no more than 2/3 of BA removed. Prior to overwood removal, reproduction must be of sufficient height and density to mask soil color and provide tree texture.

Here again, a combination of the two cutting methods may be highly desirable.

(Cut Calculated - 73% of full yield, if loggable.)

Foreground - Retention. Small group selection (generally one acre) with maximum of 25% of area cut each 50 years. Objective is to grow larger trees. Strict cleanup is an absolute necessity.

(Cut Calculated - 57% of full yield.)

Foreground - Partial Retention. Small group selection (generally one acre) with maximum of 20% of area cutover in a decade.

Shelterwood may cover 100% of area. Overwood removal may not cover more than 50% of the area within a decade. Prior to overwood removal, reproduction must be of sufficient height and density to mask soil color and provide tree texture.

Cutting in adjacent areas will be staggered to maintain visual variety.

Once more, a combination of cutting methods is very desirable.

(Cut Calculated - full yield, if loggable.)

\*Area is to be defined here as that acreage which can be observed at one time from its most critical viewing point.

Revised 2/74



DIRECT CAPITAL AND OPERATING COSTS

The cost estimates of the Final EIS are based on a recent comprehensive analysis of community development expenditures prepared by Real Estate Research Corporation for the Council on Environmental Quality, et al (April 1974). This study not only demonstrates the savings possible in planned growth patterns, but also indicates in detail the total cost picture for different levels of community growth. The analysis treats direct capital as well as operating and maintenance costs and breaks down these costs by specific facilities and services. This includes schools, public facilities and services (fire, police, etc.), streets and roads, and utilities (sewer, water, electric, etc.). For a representative community of 33,000 population and 10,000 units on 6000 acres, the direct capital, operating and maintenance costs of key service facilities over a ten year period is shown in Table I. The range and variation in figures reflects the type of growth pattern, whether low density sprawl or dispersed growth at one end of the scale and very concentrated, planned development at the other extreme.

TABLE I - Costs to Develop a Community of 33,000\*

	<u>Dollars</u> <u>(in thousands)</u>	<u>Percent</u> <u>Direct Capital</u>
1. Schools	\$55,025-55,119	82
2. Public facilities and services	21,380-22,190	74-76
3. Streets and roads	23,071-38,965	97-99
4. Utilities	25,767-67,115	87-99
Total Costs	\$125,243-183,389	85-88
-per capita	\$3.79-5.56	

A "neighborhood of 2800 to 3300 population and 1000 units demonstrates of course, a much lower total capital and maintenance cost pattern and does not require nearly the range of services and facilities as a community of 33,000. Table II shows a cost breakdown relative to this level of development with variation according to design pattern.

\*Exclusive of land acquisition and residential construction costs.

TABLE II - Costs to Develop a "Neighborhood" of 3000\*

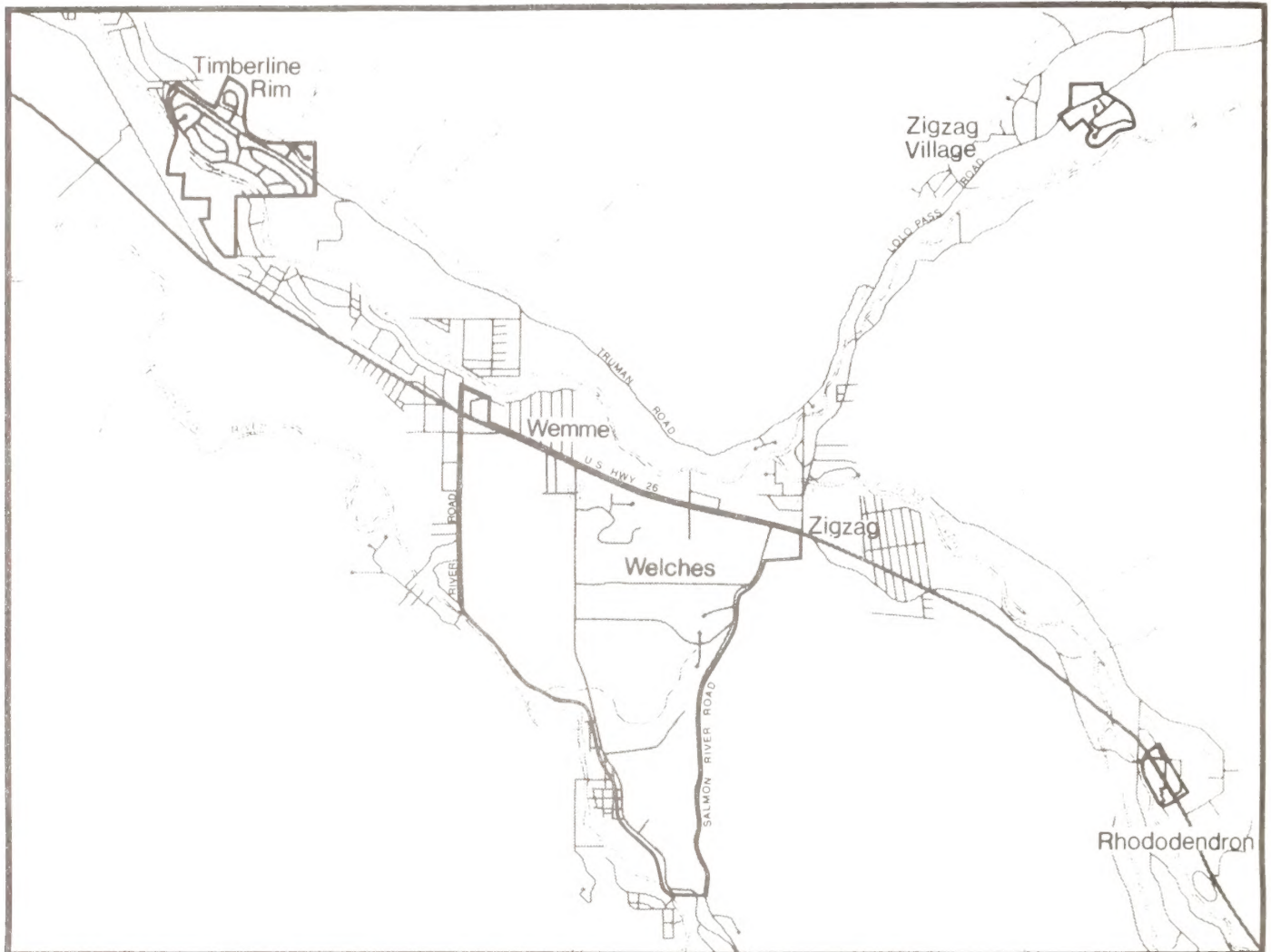
	<u>Dollars</u> <u>(in thousands)</u>	<u>Percent</u> <u>Direct Capital</u>
1. Schools	\$1234-1442	19
2. Streets and roads	2083-2689	97-99
3. Utilities	3148-4132	88
Total Costs	\$6465-8263	78-80
-per capita	\$1.96-2.95	

The sensitivity of such figures to the Mt. Hood area needs to be further examined. It may be shown for example, that total school costs are appreciably lower due to the high seasonal occupancy factor, while sewage collection costs are much higher due to difficult terrain and geologic circumstances. Nevertheless, for general assessment purposes, these figures serve as a basis for a more complete gage of the total potential cost of growth. In addition, they may not be all that far removed from actual cost requirements. The RERC analysis assumes a \$900-1060 cost factor per student while, based on current enrollment and budget figures, the Welches Elementary District has a very comparable operating expenditure of \$1180 per student. Furthermore, the recent preliminary sewage study estimates by ST&R (capital and operating) indicates \$18 million to serve 42-45,000 population on 6000 acres (Rhododendron to Alder Creek), as compared to the RERC estimate of \$8-12 million needed to provide sewers to a community of 33,000 on 6000 acres.

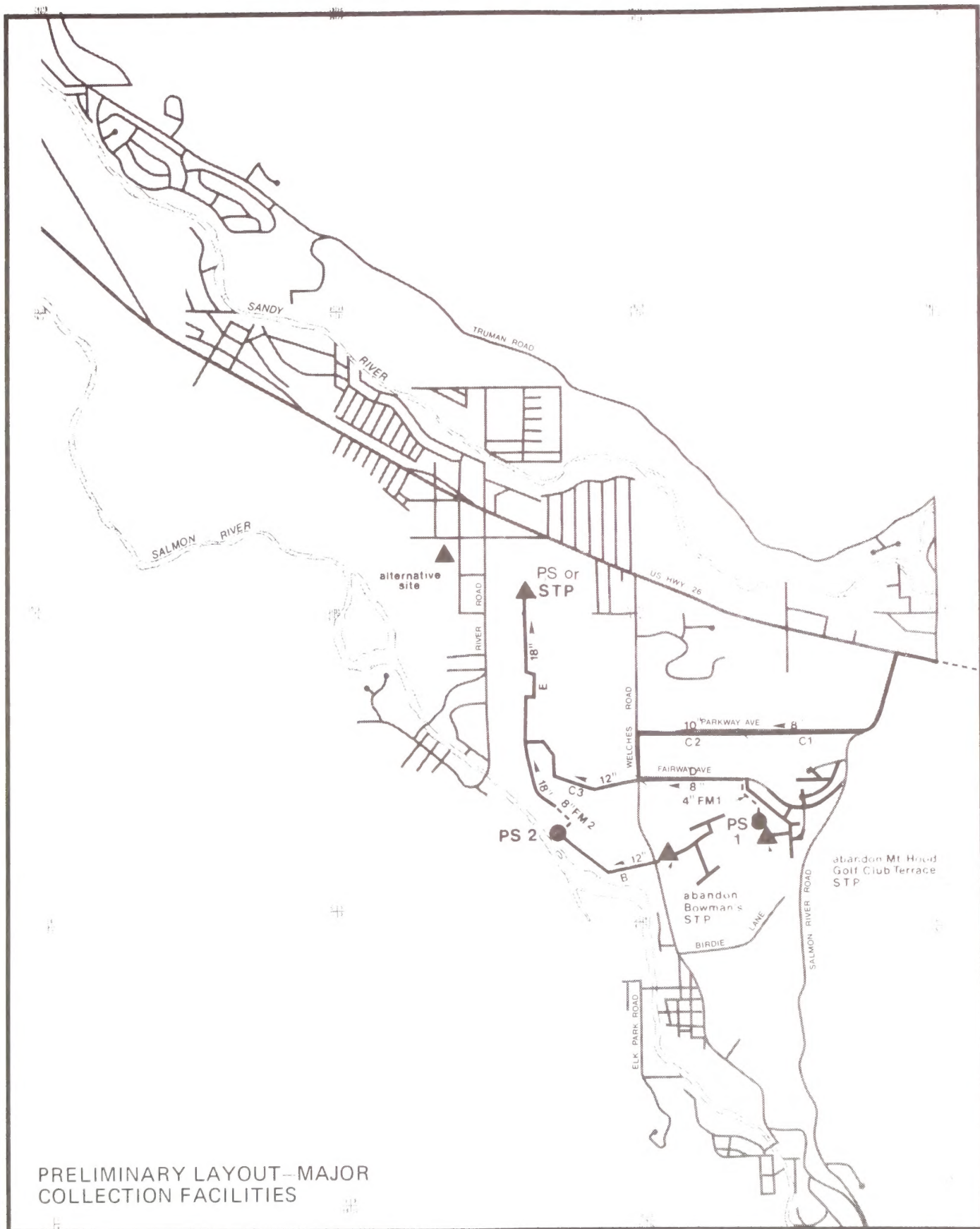
\*Exclusive of land and residential costs.



## SEWAGE ALTERNATIVES FOR THE LOWER HIGHWAY 26 CORRIDOR, CLACKAMAS COUNTY



GENERAL SEWER SERVICE AREAS





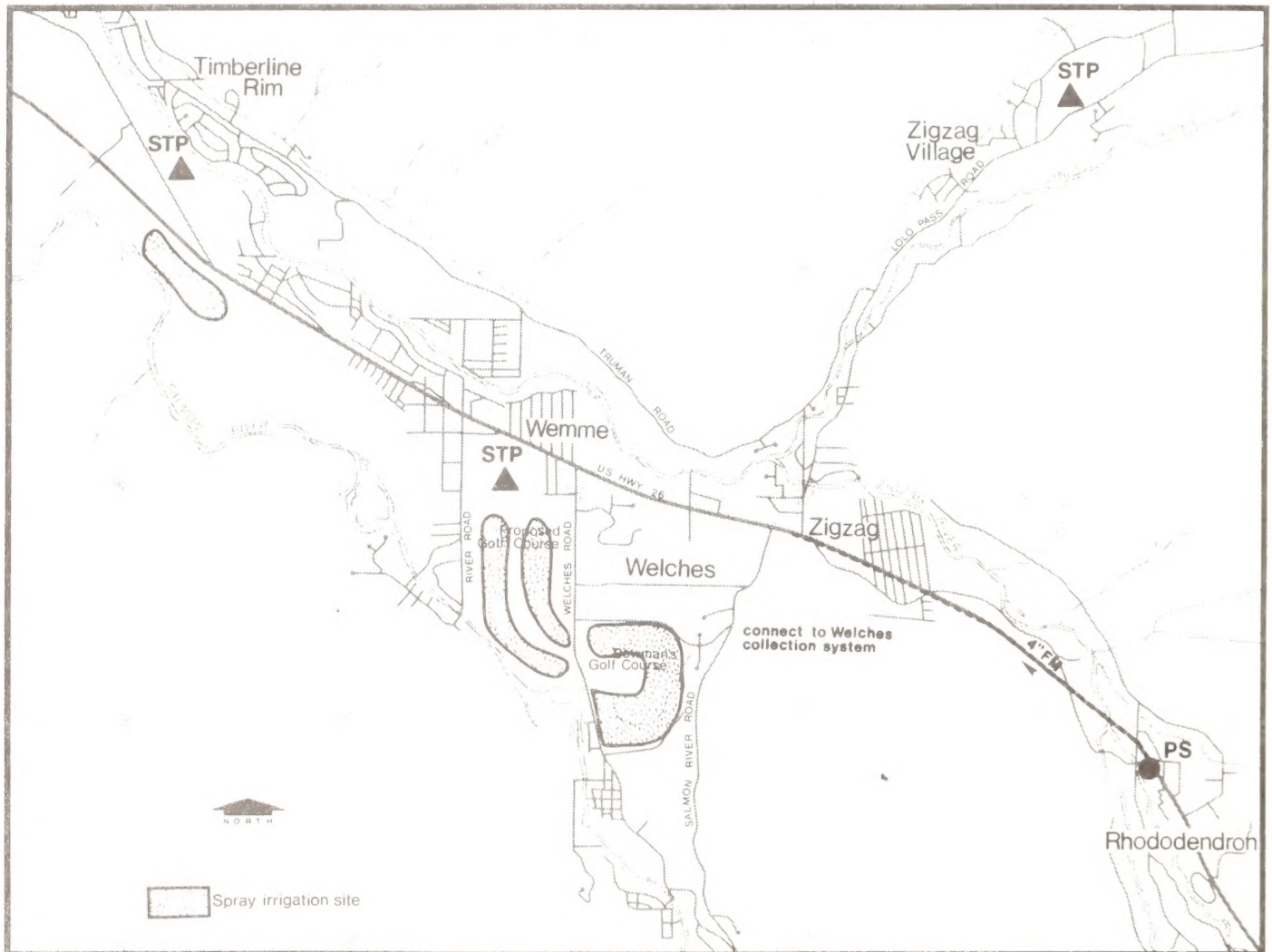
### Alternative I

In Alternative I, the existing Timberline Rim treatment plant would be used to serve the Timberline Rim service area only. Because the plant has not been used since its construction in 1971, some start-up work will be necessary. This would consist of a thorough inspection and clean-up of existing equipment to be sure all equipment is in good working condition. Most of the original mechanical equipment installed at the plant could be used. The plant is located in the Sandy River floodplain, and would have to be protected from potential flood damage.

In addition, a spray irrigation site would have to be acquired, and irrigation facilities constructed in order to meet the low flow discharge criteria. Initially, approximately 10 acres of land would be needed for an irrigation site, possibly located south of Highway No. 26, as shown. Under this option, the plant's capacity of .25 mgd would be more than sufficient to last through the 20-year study period.

Under Alternative I, a plant to serve the Welches area would have to be built immediately. The plant would be sized

Figure 12 SEWERAGE ALTERNATIVE I



initially at .25 mgd, and expanded to .50 mgd at a later date. Treated effluent would be discharged to the Sandy River during the high flow months, and spray irrigated onto the adjacent golf courses during the low flow summer months. Although the actual amount would have to be determined during design, it is believed that treated effluent could be applied onto the golf course at an average application rate of

1/4-inch per day. At an average daily flow of .25 mgd, approximately 40 acres of land would be required initially.

The comparative advantages and disadvantages of Alternative I are presented. In addition, an abbreviated cost summary has been presented in Table 15. A more complete cost breakdown is presented in the Appendix.

#### ALTERNATIVE I: PRO'S AND CON'S

##### PRO

1. Both plants are close to sources of flow, minimizing transportation costs.
2. Welches plant can use adjacent golf courses for spray irrigation in summer.

##### CON

1. High operating costs will be incurred because two major plants must be operated and maintained simultaneously.
2. Land for summer irrigation facilities for the Timberline Rim plant must be acquired, and facilities constructed. This would be in addition to irrigation facilities needed for the Welches plant.
3. The Welches plant must be constructed immediately, raising initial construction costs.
4. The Timberline Rim plant is located in the floodplain.



**Table 15**  
**ALTERNATIVE I: COST SUMMARY (\$1,000's)**

	Initial	1986
Capital Costs	1,893	461
Present Worth	1,893	299
Annual O & M	95.2	14.8
Present Worth	1,060	83
Salvage Value	490	139
Present Worth	142	41
Engineering, Legal, Administration and Contingencies	568	115
Present Worth	568	75
Total Present Worth*	3,794	

\*Total does not agree with figures shown due to rounding.



## Alternative II

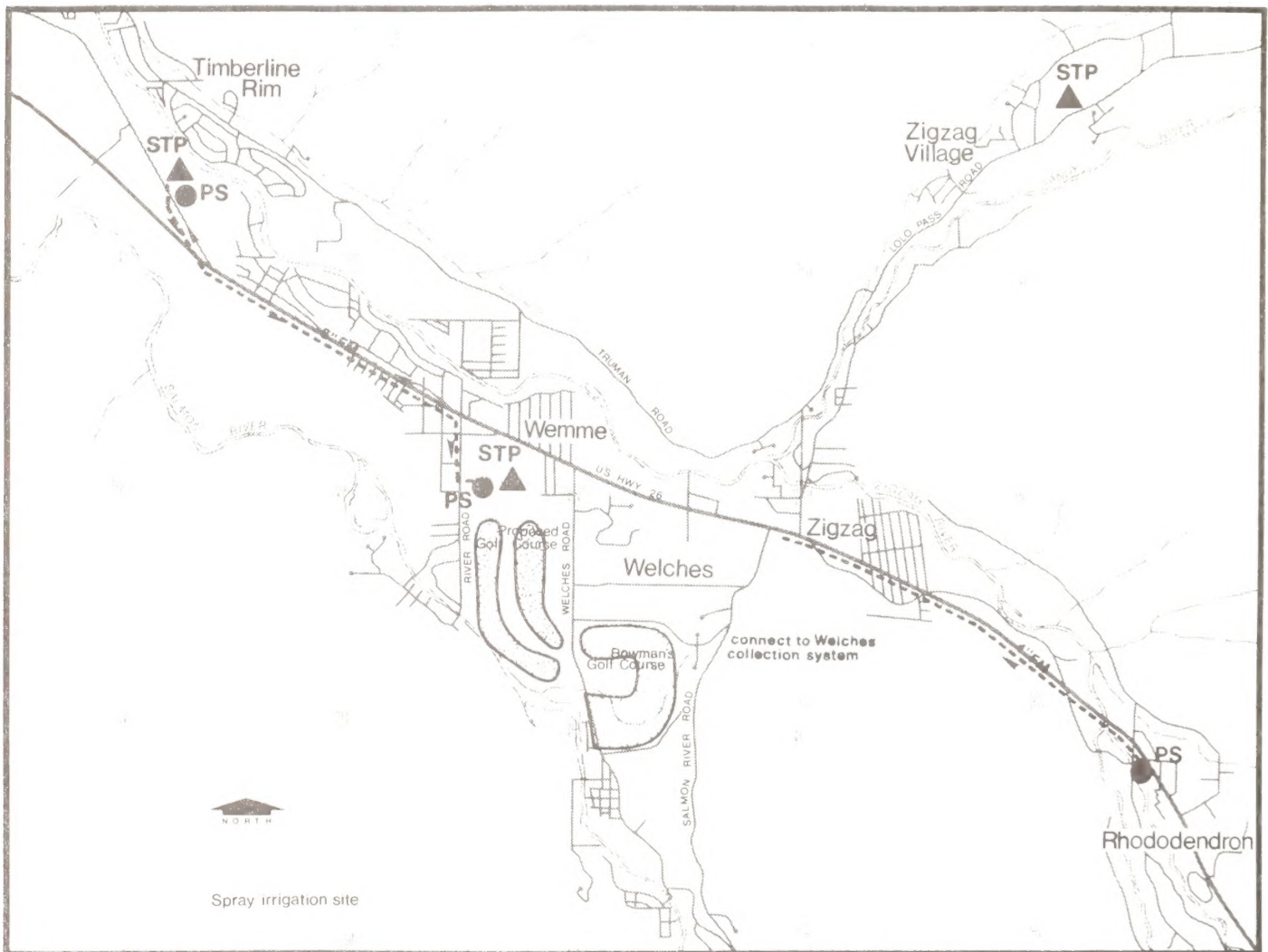
In Alternative II, the existing Timberline Rim plant would be used as an interim facility to treat wastewater from both Timberline Rim and the Welches area. Later, when the Timberline Rim plant reached its .25 mgd capacity a regional facility would be built in Welches, and the Timberline Rim plant would be abandoned.

Initially, waste would be pumped from the Welches area to Timberline Rim via a 6-inch force main. The route from Welches to Timberline Rim is generally downgrade and an 8-inch gravity sewer could be constructed which would carry the waste without pumping. The 6-inch force main

would be needed regardless, because when the Timberline Rim plant is abandoned, a pumping station will be built there and the 6-inch force main would be needed to carry flows from Timberline Rim to the Welches plant for treatment. By constructing the force main initially, it could be used under both situations.

In lieu of acquiring land and developing a spray irrigation site near Timberline Rim for summertime disposal of effluent, it appears it would be less costly to lay an 8-inch force main in the same trench as the 6-inch line and pump the treated effluent back to Welches for spray application onto the golf courses.

Figure 13 SEWERAGE ALTERNATIVE II



As in Alternative I, some start-up work would have to be done on the Timberline Rim plant. Flood protection would also have to be provided. Because irrigation onto the golf courses would probably be allowed during the night only, new pumps would have to be installed to pump the treated effluent back to Welches, as the existing irrigation pump would be deficient in both head and capacity. Also, because the existing filters at the plant would not have enough capacity, a strainer would have to be installed to protect the pumps and sprinkler heads from debris. An existing 8-inch ductile iron line under the lagoons is now intended for use as a gravity line. As such it would be deficient in capacity. It could however, be converted for use as a suction line to the proposed irrigation pumps. These possible plant alterations are illustrated in Figure 14.

Both the proposed irrigation pumping station and later, the Timberline Rim sewage pumping station would have to utilize high head pumps, with as much as 400 feet being required for the irrigation pumps and somewhat less than 300 feet needed for the sewage pumping station. When the Timberline Rim plant was abandoned and sewage pumped from there to Welches, special consideration would have to be given to the problem of sewage going septic in the 6-inch force main on its way to Welches. This would happen because flows from Timberline Rim are expected to be low for a number of years, causing sewage to go to an anaerobic condition because of the long detention time in the force main without any contact with the air. The subsequent discharge of septic sewage into the treatment plant could cause odor problems and even plant upsets, depending on the amount introduced. Several things could be done to minimize this problem. Chlorination at the pumping station could reduce the odor problem. The 8-inch force main could be "slip lined" with a smaller diameter polyethylene pipe to reduce the pipe detention time. Later, when flows have increased, the 6-inch force main could be

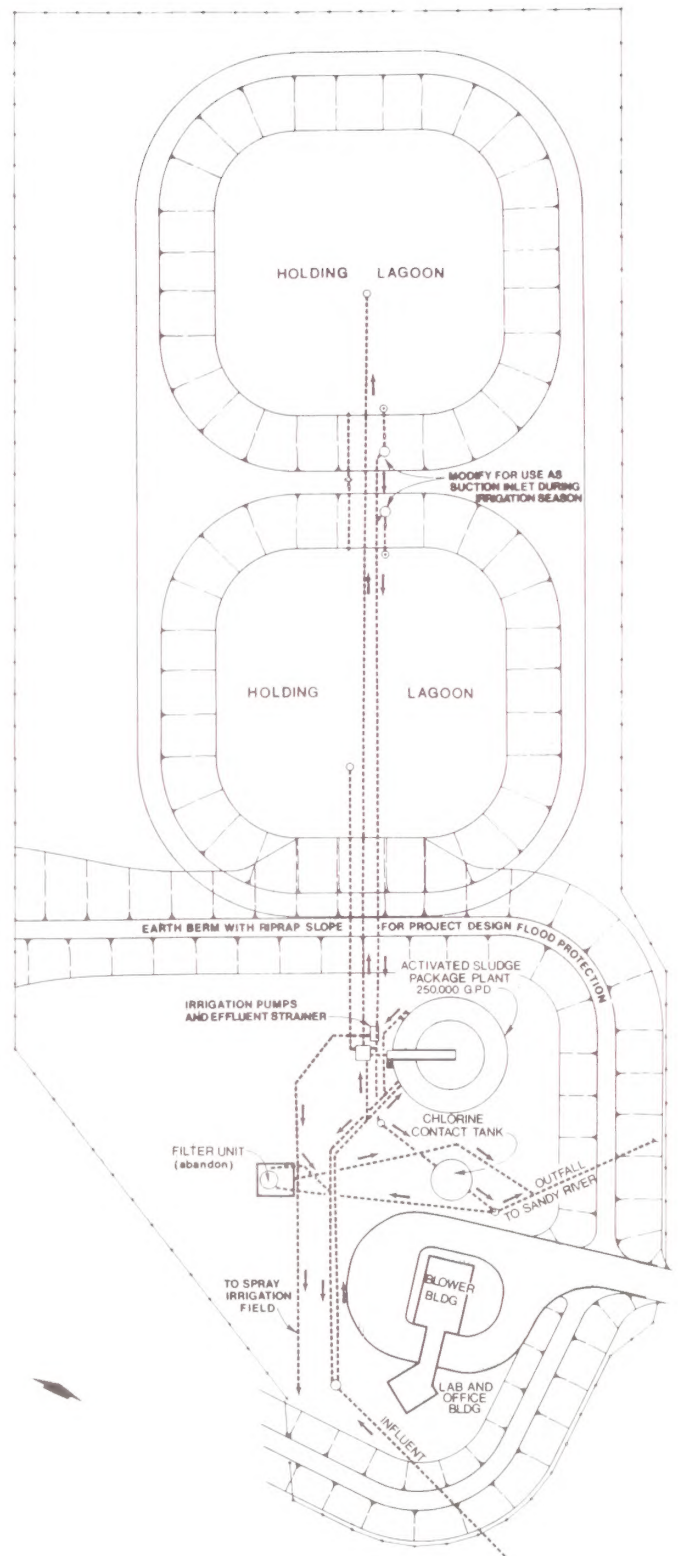


Figure 14  
TIMBERLINE RIM PLANT,  
POSSIBLE ALTERATIONS



used. Another option would be to continue to operate the Timberline Rim plant to serve that area only, once the Welches plant is built. This would be done until flows increased to the point that they could be pumped without problem. During the summer the treated effluent could be pumped to Welches for spray irrigation. Doing this would also postpone construction of the Timberline Rim pumping station. Still another option would be to provide a pre-aeration basin at the Welches plant to pretreat the septic waste before it is introduced into the plant. This would appear to be the least costly solution.

Several pros and cons of this alternative, as well as a comparative cost summary are presented.

**Table 16**  
**ALTERNATIVE II: COST SUMMARY (\$1,000's)**

	Initial	1986	1997
Capital Costs	1,493	1,263	420
Present Worth	1,493	819	138
Annual O & M	63.1	70.1	11.0
Present Worth	386	394	7
Salvage Value	617	388	370
Present Worth	189	113	108
Engineering, Legal, Administration and Contingencies	448	379	126
Present Worth	448	246	42
Total Present Worth	3,563		

#### ALTERNATIVE II: PRO'S AND CON'S

##### PRO

1. Low initial cost because of utilization of the existing Timberline Rim plant and postponement of construction of a new facility.
2. By postponing construction of the Welches plant, time is gained to assess ongoing growth patterns and population trends and will enable design of the new treatment facility to be based on factual historical data.
3. Only one plant will be operated at any one time, lowering annual operation and maintenance costs. (Zigzag Village plant excepted.)
4. The dual force mains would allow a large amount of flexibility for serving an expansion of service areas in the Brightwood area, should this occur sometime in the future.
5. The regional treatment facility, to be located in Welches, would be out of the floodplain.

##### CON

1. The Timberline Rim plant is located in the floodplain.

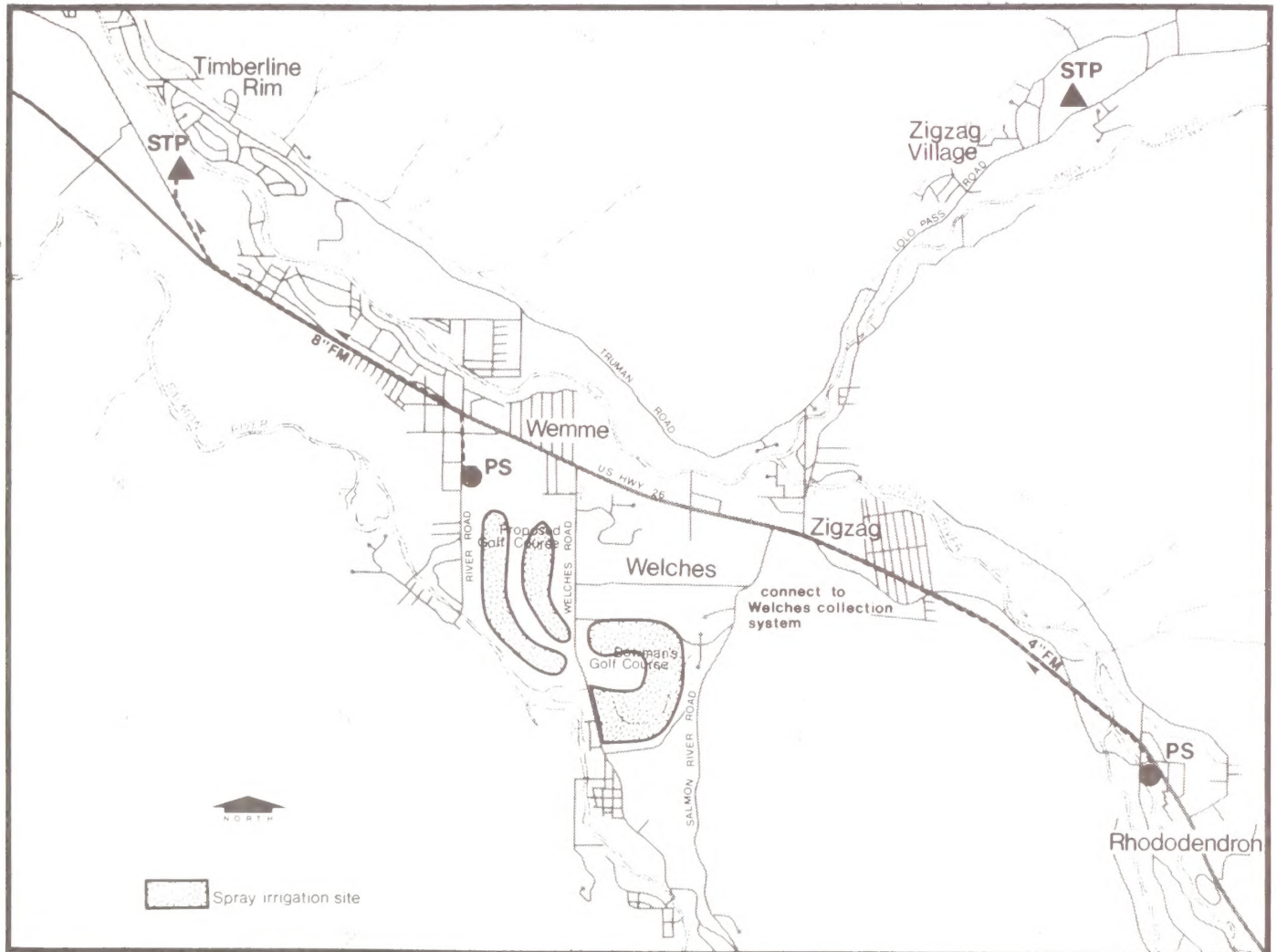
### Alternative III

In the early years, Alternative III is very similar to Alternative II. Waste would be pumped from Welches to the existing Timberline Rim plant for treatment. When the Timberline Rim facility came to its present capacity, however, it would be expanded instead of building the regional plant in Welches.

There is room at the Timberline Rim plant site to allow the construction of an additional .50 mgd package unit, which would raise the total capacity of the plant to .750 mgd. This would probably be sufficient to last beyond the year 2000.

As in Alternative II, treated effluent would be pumped back to Welches for direct spray irrigation onto the golf courses during the low flow months. This would be less costly than acquiring the needed amount of land near Timberline Rim for an irrigation site. When it came time to expand the plant, it would be necessary to find a new site to construct additional irrigation surge ponds, as there is not enough room at the present site to allow this. The logical site would be in Welches, close to the golf courses. An additional irrigation pumping station would have to be built near these ponds to repump the effluent to the irrigation facilities.

Figure 15 SEWERAGE ALTERNATIVE III





To allow for more room for the future expansion, the flood protection berm would encompass a larger area than in Alternative I or II. Too, shop and garage facilities would be constructed, possibly at the plant site or near the surge pond site in Welches.

Consideration should be given to the fact that although the expanded capacity of the plant would probably be sufficient to last through the 20-year study period, it will not be enough to meet the combined ultimate needs of the various service areas, and a new plant will have to be constructed sometime after the year 2000. Also, providing future sewerage facilities to areas in addition to those currently being contemplated would shorten the useful life of the plant. The fact also remains that the Timberline Rim plant is located in the floodplain, and even though the facility would be surrounded by a flood protection berm, there is no failsafe way to protect the facilities from a major flood event. A final

consideration is that the existing .25 mgd unit is approximately 6 years old. Though it has never been used, it has deteriorated somewhat due to its lack of use and the effects of weather. It is conceivable that this unit might have to be replaced before the 20-year study period is over, or at least require a good deal of maintenance in its later years.

**Table 17**  
**ALTERNATIVE III: COST SUMMARY (\$1,000's)**

	Initial	1986	1997
Capital Costs	1,675	613	105
Present Worth	1,675	397	35
Annual O & M	63.9	20.0	1.2
Present Worth	697	109	1
Salvage Value	604	161	95
Present Worth	175	47	28
Engineering, Legal, Administration and Contingencies	502	184	32
Present Worth	502	120	10
Total Present Worth	3,296		

**ALTERNATIVE III: PRO'S AND CON'S**

- PRO**
1. Least present worth cost of the four alternatives considered.
  2. Only one plant will be operated at any one time. (Zigzag Village plant excepted.)

- CON**
1. The Timberline Rim plant is in a floodplain. This is especially noteworthy in that the plant will be the regional treatment facility.
  2. The plant site would not be amenable to expansion beyond .75 mgd.
  3. Inefficiency and high transportation costs to pump wastes from Welches to Timberline Rim for treatment and then, during the summer, back to Welches for spray irrigation.

#### Alternative IV

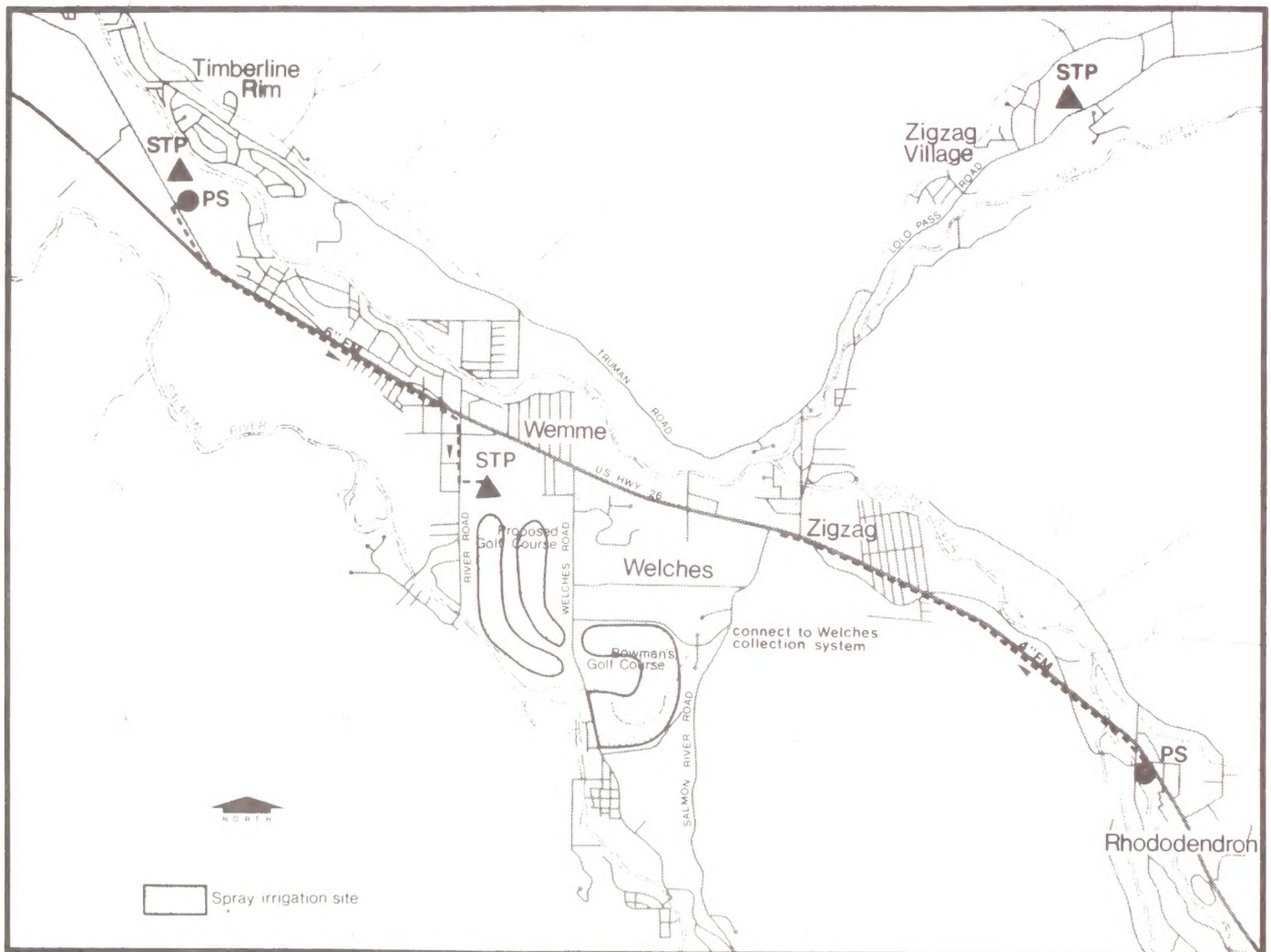
Under Alternative IV, the Timberline Rim plant would not be used at all. Instead, the regional plant in Welches would be built immediately, and a 6-inch force main and pumping station would be constructed to convey wastewater from Timberline Rim to Welches for treatment.

As in Alternative II, special attention would have to be given to septicity problems associated with the force main from Timberline Rim. Probably a pre-aeration basin at the treatment plant and chlorination facilities at the pumping station

would minimize the shock load and odor problems which would accompany septic sewage.

As with all the other alternatives which consider constructing the regional plant in Welches, effluent discharge during the high flow months would be to the Sandy River. During the low flow summer months the treated effluent would be spray irrigated onto the adjacent golf courses. The plant would be sized initially at .25 mgd, with subsequent expansions to .50 mgd and .75 mgd.

Figure 16 SEWERAGE ALTERNATIVE IV





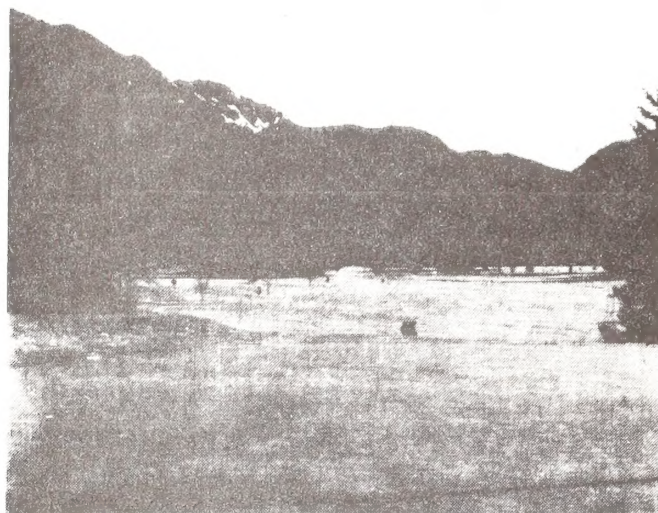
# ALTERNATIVE IV: PRO'S AND CON'S

## PRO

1. Because the Timberline Rim plant will not be used, reliance on a treatment plant located in the floodplain is avoided. Floodproofing of the Timberline Rim pumping station would be easily done by locating electrical equipment above the flood elevation.
2. Only one plant will be in operation at any one time. (Zigzag Village plant excepted.)

## CON

1. Construction of the Welches plant and the force main between Timberline Rim and Welches causes relatively high initial construction costs.
2. The single 6-inch force main between Timberline Rim and Welches would limit flexibility with regard to being able to serve an expansion of service areas in the Brightwood vicinity, should this occur sometime in the future.



**Table 18**

**ALTERNATIVE IV: COST SUMMARY (\$1,000's)**

	Initial	1986	1997
Capital Costs	1,962	463	420
Present Worth	1,962	300	138
Annual O & M	62.0	15.0	11.0
Present Worth	690	84	7
Salvage Value	501	135	370
Present Worth	146	39	108
Engineering, Legal, Administration, and Contingencies	589	139	126
Present Worth	589	90	42
Total Present Worth	3,609		

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**COMPARATIVE COSTS (\$1,000's)**

	<b>ALT. I</b>	<b>ALT. II</b>	<b>ALT. III</b>	<b>ALT. IV</b>
<b>INITIAL COST</b>	<b>\$2,460</b>	<b>\$1,941</b>	<b>\$2,177</b>	<b>\$2,551</b>
<b>LOCAL SHARE</b>	<b>685</b>	<b>555</b>	<b>609</b>	<b>705</b>
<b>ANNUAL O&amp;M</b>	<b>95.2</b>	<b>63.1</b>	<b>63.9</b>	<b>62.0</b>
<b>TOTAL PRESENT WORTH</b>	<b>\$3,794</b>	<b>\$3,563</b>	<b>\$3,296</b>	<b>\$3,609</b>

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This map provides information at a small scale to guide unit planning and development. Larger scale and more detailed land suitability maps must be used for site planning and more detailed evaluation.

Suitability is defined in this analysis as the physical and ecological capability of a relatively homogeneous area to support specific uses. No attempt is made to describe the activities that should occur on any particular area.

An understanding of the map legend, planning objectives and the use-and-demand information will be necessary in order for the reader to evaluate which lands he feels should be allocated to which uses.

The following land classes were arrived at cooperatively by the Mt. Hood Interagency Planning Team and several resource specialists:

#### WILDLANDS

Areas not suited for agriculture and with limited suitability for development. Also, areas particularly important for watershed or ecological protection.

#### MARGINAL FOREST — RANGELANDS

Rangelands and forest lands of low or moderate productive capacity for commercial timber, with restrictions for scenic, ecologic or watershed protection. These areas may be well-suited for dispersed recreation.

#### FOREST — WATERSHED LANDS

Productive commercial forest lands that are suited for water production and require management direction to protect these values. These areas may be well-suited for a wide range of dispersed recreation use forms.

#### AGRICULTURAL — FOREST LANDS

Areas suited for agriculture as well as a variety of forest uses. Most of these lands are not now under cultivation.

#### DIVERSIFIED USE LANDS

Areas well-suited for a wide variety of forest-related activities, including developed recreation, hunting, fishing, timber harvest and scenic experiences. These areas would also be suited for different levels of recreation residential and community expansion.

## Mt. Hood Planning Unit LAND SUITABILITY

